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ADDRESS ALL COMMUNICATIONS TO

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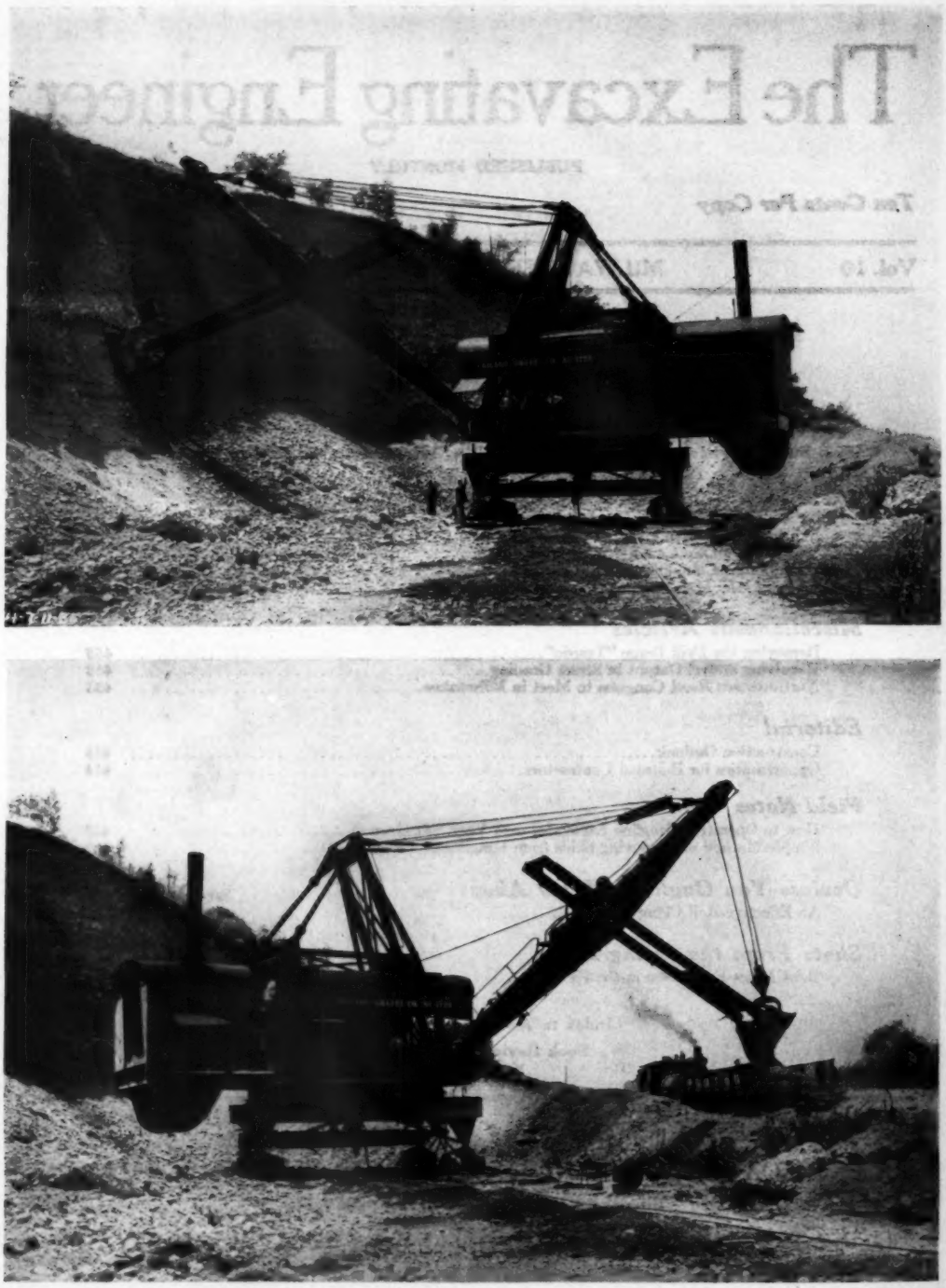

Bucyrus 175-B Steam Shovel Digging Gravel in the Chicago Gravel Company's Plant, near Joliet, Illinois

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The Excavating Engineer

Vol. 10 SEPTEMBER, 1914 No. 12

Digging Gravel with a Big Revolving Shovel

How the Chicago Gravel Company solved the problem of digging a high face of cemented gravel in the most economical manner—Description of an unusual plant.

THE plant of the Chicago Gravel Company at Rockdale, Illinois is unique in several ways. It is said to be the largest gravel washing plant in the world; the design of its crushing, conveying, screening and washing machinery has unusual features which have attracted wide attention; and finally, it is the only plant in the world which is loading its gravel with a big revolving shovel, the type which has come to be commonly known as the "coal-stripper."

The Chicago Gravel Company, which recently purchased the Joliet Sand & Gravel Company, and its subsidiaries has four plants located in Plainfield, Elgin, Millsdale, and this one in Rockdale, Illinois, about four miles south of Joliet near the Desplaines River on the main line of the Chicago, Rock Island & Pacific Rail Road.

At the present time this Company with the combined capacity of these four plants is the largest producer of washed gravel in the country.

The Rockdale plant, which was built in 1912, was described in the September 1912 number of our forerunner, The Steam Shovel News. When the plant was first put into operation they used in their gravel pit a Bucyrus 65-ton shovel and an Atlantic class 45. These were added to later by two 70-ton Victor shovels, carrying 2⅝ yard dippers. The Atlantic and Bucyrus were used for loading gravel and the two last named machines for digging filling when this was called for, and in emergencies, in the gravel.

The face of the gravel is high and is composed of a particularly stiff cemented gravel formation, standing in an almost vertical bank. The formation is very solidly cemented, indeed solid lumps of this material as large as 4 and 5 feet in diameter, which have broken off and fallen down, may be seen along the edge of the pit.

Although the railroad type shovels were very satisfactory, it was found that the height of face that could be carried with safety was limited. This was due to the fact that the sudden slides which occasionally occur were apt to bury and wreck the shovels. Careful management has prevented serious accidents, although at one time the Atlantic's dipper and handle were wrecked. Consequently, after considerable study, it was decided that what was required was a type of shovel that could carry the maximum face of gravel then encountered, while standing far enough away from the bank to be safe from slides, and at the same time had an output in this hard digging, without the aid of powder, equal to a standard shovel.

Storage Bins

Another consideration was the difficulty in maintaining a good loading track with a standard type shovel, because of the comparatively narrow cut it makes. As every shovel man realizes, a poor loading track causes a large amount of delay due to derailed cars and results in the spending of much money for the constant shifting of the track, which expense added to the decreased life of the ties, spikes and other materials, due to constant

handling, rolls up a surprisingly large sum. With a shovel that could handle a maximum face and make a cut of extreme width, a permanent loading track could be maintained at a minimum expense and delay. Furthermore, with a shovel of this type, the number of moves could be greatly reduced, and consequently one pitman could do the work of four or five, which are required with a standard type shovel.

Atlantic Shovel in Operation

Such a combination was found in the 175-B Bucyrus shovel.

This shovel is the type which has been giving such good satisfaction in the coal stripping region centering around Pittsburg, Kansas. As our photographs show, it is similar in general to the small revolving shovel, except built on a very large scale. It carries a 75 foot boom and a 48 foot dipper handle with a 3½ yard dipper, giving it a height of cut of 61 feet with the boom pitched at a 45° angle. This does not mean that 61 feet is the limit of the face it can carry, as 100 feet can be taken successfully in material that will fall to the dipper. It has a height of dump of 52 feet and will cut a level floor 112 feet wide.

It is driven by 12″x15″ main engines, 9″x9″ swinging engines and 8½″x8″ thrusting engines. Its approximate working weight is 428,000 pounds.

At the time that our views were taken a face of about 65 feet was being carried and the material was of the stiffest character. It is making about 2,000 cubic yards in a day of 10 hours, which output can be increased if occasion requires. The shovel loads standard gauge Rogers ballast cars, carrying 40 yards each.

It is a difficult matter to judge the time of the digging cycle of the shovel, as much depends upon the angle at which it is digging, what part of the face is being excavated, and the consistency of the material. But it can with ease swing in a complete circle in 25 seconds which gives an idea of the rapid action of the machine (This means that the dipper travels about 1281 feet a minute).

Except for replacements of cable and other minor repairs, the shovel has given no delay since it started digging, the last of April and has lived up to every expectation.

The Atlantic 45 is used for digging filling, but at the present time is engaged in excavating a water sump to increase the water supply for the washers. One Victor is used for digging filling and the other shovels are held in reserve.

The rest of the equipment on wheels consists of 3 locomotives, 2 Baldwins and an American; and two 25-ton cranes, a Browning and a Bay City, which do odd jobs about the plant, loading and unloading cars, dinky duty, etc.

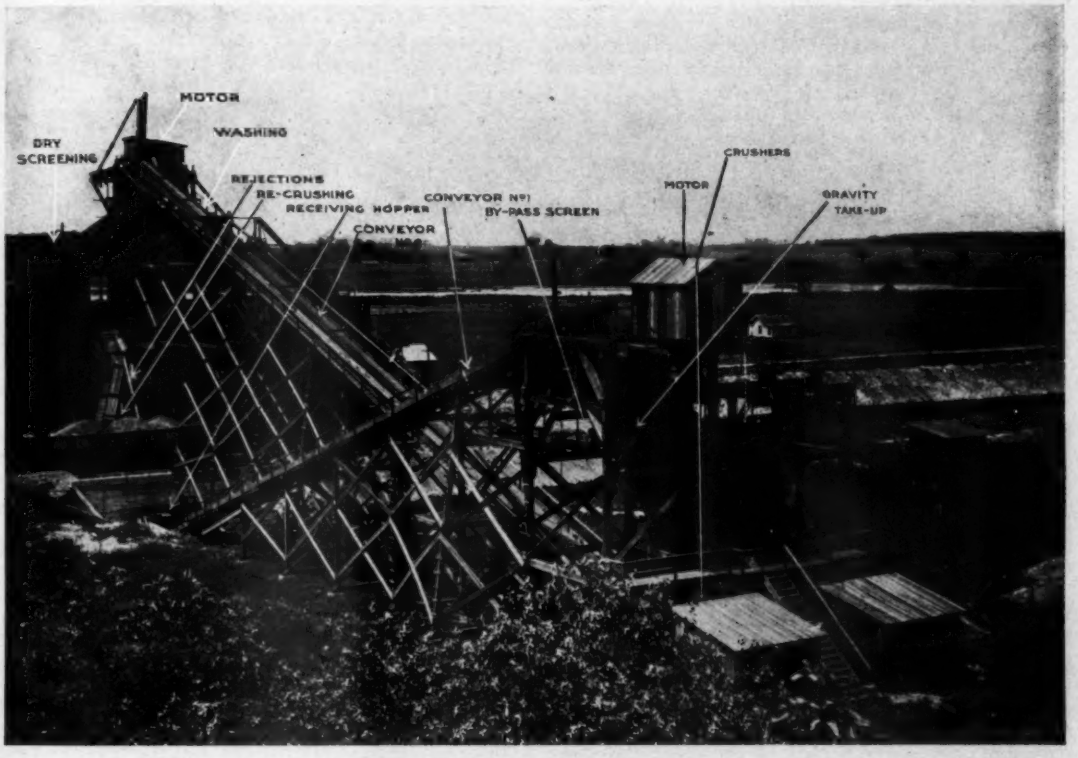
The design of the plant itself, as stated, is unusual, principally becase of the use of preliminary screens and crushers relieving the main screens, The bank gravel is dumped from the hopper cars into a receiving hopper located beneath the track. From the receiving hopper it is carried up an 18-deg. incline to the dry-screening plant on a 36-in. Stephens-Adamson belt conveyor, about 195 ft. in length between centers. This conveyor discharges over a 4-in. screen, which allows the fine material to pass directly to a second conveyor, leading from the lower part of the crushing plant up to the top of the group of storage bins, where the screening and washing equipment is located. The over-size gravel from the screen is passed through three No. 6 Allis-Chalmers gyratory crushers, which are driven by individual 50-H. P. Allis-Chalmers motors. This feature is unusual and is said to a big factor in increasing the capacity of the screens and in cutting down the depreciation of the gyratory crushers. The output of the crushers is also carried by the second conveyor up to the screen and the washing plant. This

conveyor is 36 in. wide, 250 ft. centers, and is on an incline of 18 deg.

Both conveyors are driven by individual motors at their head ends. Directly back of the heads they are provided with gravity take-ups, each consisting of a weighted pulley in a vertical frame allowing 9 ft. of free travel up and down. This provides automatic take-up for 18 ft. of belt at the point back of the drive pulley, where the slack accumulates.

The screening plant is divided into two parts, one for dry screening for railroad ballast and one for washing and screening gravel for concrete purposes.

Three sets of washing screens are provided for the first three separations, but the reduced volume of the gravel passing to the fourth separation requires only two screens. These final screens deliver into a pair of double-discharge settling tanks, in which the sand is separated from the mud and clay, which is passed off in solution. The washing screens are all of the improved Gilbert type, 36x84 in. Each screen of the first three sets is provided with an inner skirt with perforations ¼-in. larger than those of the outer plate, the skirt extending nearly the full length of the main screen plate, so as to increase the screen's



Plant of the Chicago Gravel Company

The second conveyor ordinarily discharges into the hopper feeding the washing screens, but when it is desired to screen dry a pivoted chute is let down so as to divert a part or all to two cylindrical dry screens. These screens have 2-in. perforations. The fine material drops into a storage bin, while the oversize is rejected to a spout leading over the loading track and delivering to a pair of 36-in. Simons disk crushers. These are located directly beside the track hopper and their rejections pass into it and then again through the dry-screening plant and back to the washing screens.

capacity by relieving it of the larger sizes and also to make the separations accurate.

The sizes produced by the screens are those demanded by the market of Chicago and vicinity. The first set rejects to the chute returning to the crushers all material above that passing 2-in. perforations. The second set rejects to bin No. 2 all above 1 in.; the third set rejects to bin No. 3 all over ½ in. and the fourth to bin No. 4, all over ⅜ in. Material below ⅜ in. constitutes sand, which is passed from the settling tanks to bin No. 5.

The storage bins are cylindrical steel tanks, a

type which has proved economical for permanent plants in the experience of this company. The screening and washing plant is supported on top of these tanks. Railroad tracks run along the two sides of the group of bins and each bin is provided with four quadrant type gates with counter-weighted chutes for loading into gondola cars. The tanks are not hoppered, but the gravel is allowed to form its own bottom at the level of the gates. The bins are all 19 ft. in diameter and the effective capacity above the gates is 380 cu. yd. each for bins 1 and 2; 315 cu. yd. for No. 3; 251 cu. yd. for No. 4, and 190 cu. yd. for No. 5, or the sand tank.

The water supply is secured from a trench, excavated to a depth of 15 ft. for a length of about 100 ft. This is being supplemented by an additional sump which will permit a sufficient supply of water to accumulate to supply the plant, obviating the necessity of pipe line to the river. An American Well Works centrifugal pump, driven by a 50-h. p. motor, delivers water to the screens at the rate of 1,200 gal. per minute.

The plans for the plant were prepared by the J. C. Buckbee Company, engineers, of Chicago, under the supervision of E. W. Renwick, general superintendent, who was also responsible for the general design. The conveying, screening and transmission machinery and related equipment was built by the Stephens-Adamson Company, of Aurora, Ill.

The 175-B is operated by H. E. Brooker and craned by J. K. Kennedy and the Atlantic by A. C. Upper and Joe Krohn.

The Fleming Coal Company's Stripping Plant

By W. S. Russell

Another example of highly successful coal stripping with a big revolving shovel.

THE Fleming Coal Co., Ira M. Fleming president, with offices at Kansas City, Mo, and Pittsburg, Kan., are stripping a field of 130 acres about two miles south of Scammon, Kansas with a 175-B Bucyrus steam shovel, which was installed last December.

This property was originally operated as a shaft mine, but on account of the material over the coal, or roof, as it is called, becoming too soft to sustain the earth overlying it, the underground mining had to be discontinued.

The overburden which has to be stripped, varies in depth from 16 ft. to 30 ft., the ground being quite level with drainage into the old underground mine. The coal is 3½ feet thick and of the best quality. The vein is quite level and is comparatively free from horsebacks. Horsebacks are ridges of fire clay, usually about 3 feet thick, with a depth equal to that of the coal, extending through it in various directions. It averages from 8 to 15 per cent of the coal in the vein. Although this is quite common, there are veins of coal in the district that are entirely free from horsebacks, which is quite an advantage in mining.

The overburden consists of a tough gray shale, with a foot or so of hard blue shale or black slate directly on top of the coal. The gray shale is surmounted with from 3 ft. to 4 ft. of sandy loam. This material is easily dug with the Bucyrus steam shovel, which weighs over 200 tons and is unusually powerful. This machine has a 75 foot boom of improved design, a 3½ yard dipper, and revolves on a turntable 24 feet in diameter. The turntable base or truck body is of massive construction, entirely of steel. It is mounted on four steel swivel trucks, having four double-flanged wheels 24 inches in diameter to each truck for 36 inches gauge of track. The rails on which the shovel operates weigh 90 pounds to the foot, are fitted with bridle bars in sections about 7 ft. 6 in. long and form a double track.

The shovel is self-propelling by chain gearing, which drives all four trucks, thus enabling the shovel to climb any grade that is usually encountered on the coal. The truck base is fitted with a heavy cross-girder beam at one end, having a center-plate bearing in the middle and equalizer screws at both ends.

The ends of this beam rest upon the trucks and by its self-adjusting movement allow the trucks to follow any unevenness of the coal surface when the shovel is moved up. The jack screws are then set tight and all four corners of the truck base are evenly supported.

The boiler, engines and machinery of this shovel are of the latest design and construction throughout, consequently the expense for repairs is very light. The hoisting cable is 1⅛ inches in diameter of the best pliable wire rope, of the flattened strand type, which gives the longest wear.

The entire shovel is of steel construction excepting the sides of the house on upper body which revolves upon the turntable base. All gearing is of cast steel with machine-cut teeth. The shovel

as a whole is exceedingly strong and durable and well adapted to the purpose.

The 175-B has a working speed of two trips per minute, and will handle 250 cubic yards of material per hour or an average of 2250 cubic yards per day of nine hours. The shovel is operated by a crew of seven men, and engineer, cranesman, and fireman on the shovel and four pit men, who move the track, hoist coal for the boiler, clean up ahead, etc.

The shovel started to dig the first of January, making its way down to the coal on an 8 per cent grade, digging a cut 60 feet wide and dumping the material all on one side. Our front cover illustration was taken in May, and shows the shovel in a box cut in 28 feet depth of stripping, the cut is 66 feet in width with perpendicular sides. The excavated material is piled up to a height of 26 feet upon the main ground level, alongside the open cut. The coal is taken out behind the shovel by hand labor and loaded into the tram cars in the pit. The tram tracks are placed upon the fire clay underlying the coal. There are 3 or 4 of these tracks up to the breast of the coal, so that a car may be loaded on each track simultaneously.

The cars are handled by mules through the pit and through an underground tunnel or drift, as it is called, to the tipple, which is located on the Frisco railroad about a quarter of a mile from the pit. This tipple is the same that was used in the underground mining, and there was no necessity for building a new one. Upon arrival at the tipple the cars are elevated by a double lift and dumped upon a shaker screen which separates the coal into three grades, lump, nut and slack. There is a railroad track under each screen, upon which the gondola cars are placed to be loaded, each one of which receives its proportion of coal as it falls from the screen. The tipple is about 65 feet high, constructed in the ordinary manner and covered with galvanized corrugated iron. It is fitted with two cages, which lift the loaded tram cars to a height of 50 feet, when they dump automatically and return to the track level at bottom of the coal pit. The cages are operated by cables from the power house nearby. This tipple has a capacity to handle 100 tons per hour or 800 tons per shift of 8 hours.

The shaker screens are of the ordinary perforated steel plate type and are operated by an independent steam engine of 20 H. P. placed in the tipple house. The shaker shaft is driven by a belt from a pulley on the engine shaft. The steam for this engine is furnished from the power house. The power house is located near the tipple, the frame is of wood, covered with galvanized iron. It contains two 54 inch tubular boilers of 100 H. P. each, set in a brick arch.

The engine is a 12″x16″ double cylinder mine hoist, geared to a 30 inch hoisting drum. The water is obtained from a nearby pond which affords an ample supply at all times.

The blacksmith shop, repair shop and store house are all well built and covered with galvanized corrugated sheet iron.

Harry C. Jones is superintendent in charge of the plant and has an office at Skidmore, near by, from which place the shipments are made. Skidmore is 2 miles south of Scammon on the electric car line, which runs between Pittsburg and Columbus, having a half hour service.

It may be well to explain that in coal stripping with the present type of revolving steam shovels the material is handled but once, it is dug from the bank and deposited in the excavated space on one side of the shovel from which the coal has been previously extracted at an expense of from 3 to 4 cents per cubic yard. This is about one-fourth of what it costs to strip with team plows and scrapers.

The 175-B Bucyrus steam shovel herein described will handle deeper overburden than any other make and does not have to be turned around upon reaching the end of the cut and no time is lost, as the truck base being short is curved to the field line and started back on a new cut with the boom swung around to dig in the opposite direction.

The coal-stripping business has been entirely revolutionized by the introduction of the big revolving steam shovels, designed especially for the purpose. There are now 30 of these shovels in the Pittsburg field, all put in during the past three years, which goes to show that there is a good profit in the business. Indeed, strip coal that three or four years ago was considered inferior to shaft coal is so much improved by being stripped by the steam shovels, that it now has a preference and is more saleable than shaft coal, being cleaner, better graded and of the best quality.

Sam and Luke, browsing around, crossed the pasture. The Judge's bull saw them, and Sam beat him to the fence by a single stride with nothing to spare. Luke, a bad starter, didn't try for the fence; he stuck to the open. He led the bull around the field on the first lap, while Sam, from the fence, urged him to a "li'l bust er speed." On the second lap Sam exhorted him: "Run, niggeh—you ain' half runnin'!" The third time, Sam yelled: "Make has'e!" Luke risked all in his answer.

"G'awn, man," he grasped, "you dorn think Ah'm *throwin'* dis yer race, does yer?"—*Exchange.*

And the Engineer Said—

A green brakeman on the Colorado Mudline was making his first trip up Ute Pass. They were going up a very steep grade, and with unusual difficulty the engineer succeded in reaching the top. At the station, looking out of his cab, the engineer saw the new brakeman and said with a sigh of relief: "I tell you, what, my lad, we had a job to get up there, didn't we?"

"We certainly did," said the brakeman, "and if I hadn't put on the brakes we'd have slipped back."—*Exchange.*

100-C and 70-Ton Bucyrus Shovels in the Columbia Quarry Company's Plant, Krause, Illinois

UMI

Plant of the Columbia Quarry Company

**One of the most modern stone crushing plants of its size in the country—
A description of the quarry operation.**

THE Columbia Quarry Company's plant is situated in Krause, Illinois, about fourteen miles southeast of St. Louis on the Mobile and Ohio Railroad. This plant is an excellent example of a good sized, up-to-date crushing plant. It has an output of 3,000 tons of crushed rock per day. This rock is a hard limestone of very good quality, expecially well adapted for railroad ballast, county road work, concrete and fluxing.

The quarry is 1500 feet in length with a face of about 75 feet. The rock is loaded by two Bucyrus shovels, a 100-C and a 70-ton. The former is fitted with a 3½ yard dipper and the latter with one of 2½ yards capacity. The combined capacity of these machines averages 3,000 tons of blasted material per day. The stripping, which consists of 6 feet of sandy clay, is handled by a 30-ton revolving shovel which loads into a 1½ yard Western side-dump cars. About 400 cubic yards a day is taken away.

The face of rock runs between 70 and 75 feet in height. This is drilled by two No. 14 Cyclone drills, which are operated by 10 horse-power Allis-Chalmers motors. A smaller drill of the same make has been used, but this is soon to be moved to another quarry operated by this company.

The No. 14 drills drill the full depth of the face from 8 to 10 feet apart and about 25 feet from the face. From 50,000 to 100,000 tons is shot down in a blast, 40 per cent nitro-glycerine dynamite is used. It is intended to plan the work in the near future, so that 350,000 tons is blasted at a time. Pieces of rock too large to be handled by the shovels are subsequently worked with Ingersoll-Rand jack-hamer drills and re-blasted.

The shovels load into 5-yard, side-dump, Orenstein-Arthur Koppel cars, which are hauled in trains of from six to ten cars each by a 16-ton Porter locomotive to the foot of the incline, up which they are hoisted by cable. It is the intention of the company to add to their equipment in the near future, another locomotive.

Plant and Portion of Quarry

The rock is crushed by a No. 12K Gates type gyratory crusher, built by the Allis-Chalmers Manufacturing Company of Milwaukee. It is then elevated by a No. 12 Allis-Chalmers elevator, passing over a 60″ x 20′ revolving screen, where everything from 2¾ inches down is screened out. Stone over this size passes over this screen by gravity to a No. 8K Gates crusher where it is recrushed. This stone is then elevated by a No. 8 bucket elevator and is screened over two 48″ x 24′ screens, making 2 inch, 1½ inch, 1 inch, ½ inch stone and dust. Any stone over 2 inches in size from these two screens is carried by a belt conveyor to the bins directly over two No. 5 crushers, where it is recrushed. This stone passes directly to the No. 8 bucket elevator, where it again is carried to the two 24′ x 48″ screens. The No. 3 crusher is used to re-crush 2 inch stone where more fine stone

is needed. All crushers, screens, elevators and hoists are of the Allis-Chalmers Manufacturing Company's make. All machinery with the exception of the three steam shovels and locomotives are operated by Allis-Chalmers 25 cycle, 3 phase, 440 volt motors.

The plant is equipped with one 150, one 100, one 75, two 60, one 40, three 30, one 20, two 10 and two 5-horsepower motors. There also are in the plant two vibrating screens manufactured by the Jeffrey Mfg. Company used to re-screen the ½ inch rock. The crushing capacity is over 3,000 tons per day.

The finished product is fed into railroad cars where it is either shipped out or stored in storage piles. The quarry has lately been equipped with a 30-ton Ohio locomotive crane with clamshell attachment. This locomotive crane does a great deal of switching of the cars and handles the rock to and from the various storage piles. It is always the aim to carry a large supply of all sizes of stone in the storage piles, so as to be able to take care of any sudden demand.

The plant is in charge of Cris Hosted, general superintendent. The office of the company is in the Fullerton Building, St. Louis, Mo.

Widening the Main Channel, Chicago Drainage Canal

Dipper dredge operation in glacial drift—Description of a modern 8-yard dipper dredge, designed for heavy duty.

THE Sanitary District of Chicago have under way the widening of the main channel of the Chicago Drainage Canal from a point about a half mile west of Ashland Avenue, Chicago to Ruby Street, Summit, Ill., a distance of about eight miles.

When the canal was first excavated, conditions prevented what is known as the earth section, as far as Summit, from being carried to the same width as the rock section, extending from Summit to Lockport, Illinois. This latter section was taken out by improved machinery and resulted in a friction factor less than that which was used in the estimates. The earth section is now being widened to bring it up to this additional capacity. The canal is now being made 50 feet wider at the bottom, on the north side, the bottom width thus being increased from 110 to 160 feet. The total amount of excavation to be handled is about 2,100,000 cubic yards of which 300,000 cubic yards remain to be dug.

The work is being done by the Great Lakes Dredge & Dock Company with a 6 and an 8-yard dipper dredge and the Fitz Simons & Connell Dredge & Dock Co. with an 8-yard dipper dredge.

Work was started in October, 1912 and will be completed, according to the engineer's estimates, by October, 1914.

Fitz Simons & Connell Dredge & Dock Company started their dredge No. 4 on October 12th, 1912 and operated it until September 15th, 1913, when it was replaced by their No. 6, which had just been completed by the Bucyrus Company. The highest month's output by No. 4 was made in August 1913, when this dredge dug 44,221 cubic yards of material. The new dredge in the month ending July 31st, 1914 handled 68,188 cubic yards, scow measurement.

The material which is being handled is a stiff glacial-drift formation, about 60 per cent of which is hard cemented gravel and some boulders which will hardly go in the dipper. An indication of the character of the digging is presented by the fact that the dipper teeth are being changed every week. The view of one of the scow pockets, figure No. 3, illustrates this well.

Figure No. 1—Bucyrus Dipper Dredge in Action

The dredge at the present time, is digging in 25 feet of water and carrying a 12 foot bank above the water level. Under these conditions and with blunt teeth on the dipper, the dredge, according to observations, loaded a 507-cubic yard scow in 54½ minutes, averaging a cycle in 50 seconds. It must be added, however, that this was not under pressure, the dredge was working easily. Under test, how-

ever, when it was first started, a scow of like capacity was loaded in 35 minutes, including a delay of between six and seven minutes for moving up and keying the main engine.

In reference to the output of this dredge, Wm. Sullivan, division engineer of the Sanitary District, states that if furnished with sufficient scows No. 6 could excavate between 70,000 and 80,000 cubic yards a month in hard digging.

The contractors at the present time have five five-pocket scows, ranging in capacity from 469 to 507 cubic yards each. These are handled in pairs by two tugs, and up to August 10th were towed a distance of fourteen miles into the outer harbor where the material was used for the construction of a breakwater for the City of Chicago. The round trip was 28 miles. The outward trip includes 6 miles in the canal and 6 miles in the Chicago River, both against a 3-mile current. One tug made the trip in 6½ and the other in 8 hours. It may be seen from this that the dredge was actually digging but 6 hours per day.

At the present time the dumping ground is 13 miles in the Lake, making a towing distance of 25 miles one way. The round trip of 50 miles is made by the two tugs in 10 and 12 hours respectively.

The dredge is of the Bucyrus Company's most recent design. The hull is steel throughout, of exceptionally rigid construction. The length is 110 feet; beam, 40 feet; depth, 11 feet 6 inches forward and 10 feet 6 inches aft.

It is driven by a 16″ x 18″ double-cylinder non-reversing engine geared for operating a three-part wire-rope hoist. This arrangement is unusual with Bucyrus dredges of this particular size, and has been made necessary by the conditions which it has to encounter in work in and about Chicago.

The dredge, of course, works in rather cramped conditions owing to the heavy traffic and the narrow channel of the Chicago River. The single-part hoist, which is the type usually used on dredges of this size requires considerably more floor space and a larger hull; the three-part hoist, on the other hand, makes possible a considerable saving in space as the machinery is more compact and the backing drive is direct from the main engine instead of from an independent engine as on single-part hoist dredges. The rest of the design follows very closely the usual type of construction.

The swinging engine is a 9″ x 9″ double-cylinder, center-valve, reversible type. The forward spud engines are 9″ x 9″ double-cylinder type arranged for

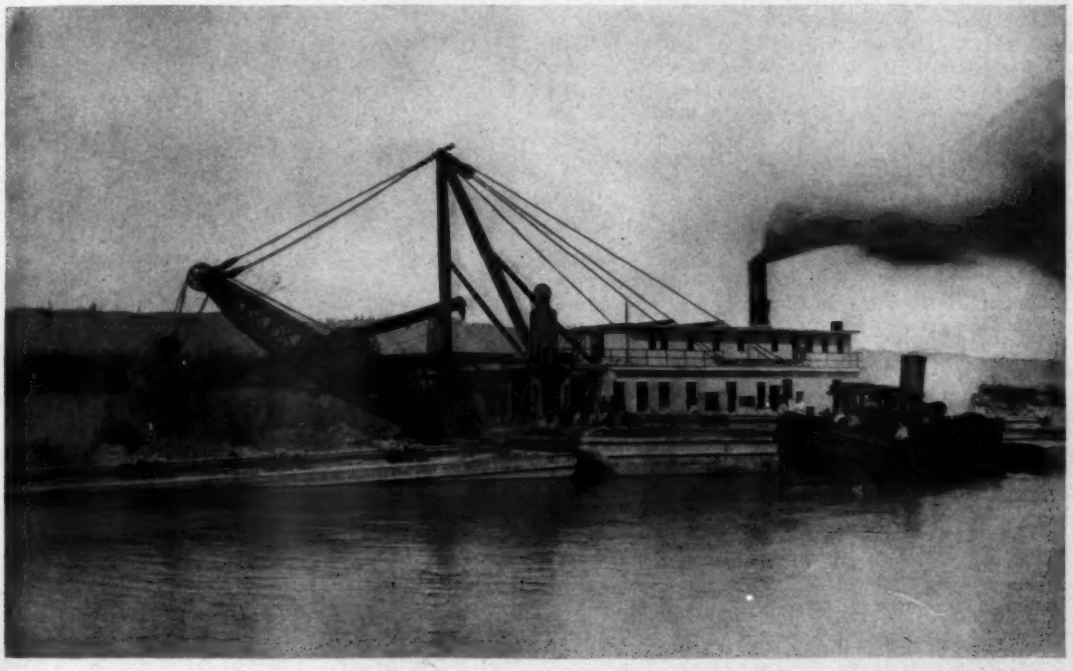


Figure No. 2—Fitz Simons and Connell's 8-yard Bucyrus Dipper Dredge on the Chicago Drainage Canal

driving wire rope, pinning up, and spud raising drums.

The boom is of steel 52 feet in length and is fitted with a steam cylinder for tripping the dipper. Two dippers are supplied, one of 8-yard capacity for the usual run of material, and another extra heavy rock dipper of 4-yard capacity. Both are fitted with teeth. The 8-yard dipper is being used at present. The friction clutches of this dredge are operated by steam thrust cylinders so as to make this heavy machine easy to handle. Practically all the gears throughout have their teeth cut from the solid and the shafts are steel castings bronze bushed.

The bottom framing of the hull consists of floors 42 inches high, spaced 9 feet, extending from side to side of the hull. Between these floors there is light channel framing. Two 42-inch fore and aft plate engine girders run the full length of the dredge, and are cut and clipped to each high floor. In place of the usual trusses below the main deck this dredge has two watertight bulkheads extending from stem to stern. Necessary openings through the bulkheads are equipped with watertight doors.

In line with the spud casings, which are set back 10 feet from the bow, there is an athwartship watertight bulkhead which not only takes the racking strains at the spuds, but forms a watertight compartment at the forward end. This compartment serves the purpose of protection in case of damage, and can be used for water ballast should it be found advisable to pin up harder than usual in some classes of digging. The coal bunkers are in the wing compartments abreast of the boiler.

The trusses above the deck extend the full length of the dredge and the stanchions and diagonals are secured to the longitudinal bulkheads. Stanchions and chords are double channel, latticed together.

The spud casings are 44 inches square and extend to the top of the truss, to which they are fastened and braced. The forward end of the truss forms the foundation for the swing circle and A-frame.

There are two oak wale stakes on each side of the hull, with vertical pieces chocked between, spaced 9 feet, to take the roll of the fender log.

Figure No. 3—Character of Material Excavated

There is in addition a fender at the forward end below the water, built of oak and faced with plate to take the shock if the dipper should be brought back against the hull.

The forward spuds are 40 inches by 40 inches Oregon fir sticks in one piece, and the wear is taken by oak rubbing strips spiked onto all four sides, and which can readily be replaced. The after spud is 20 inches by 20 inches fir, operated by a rack

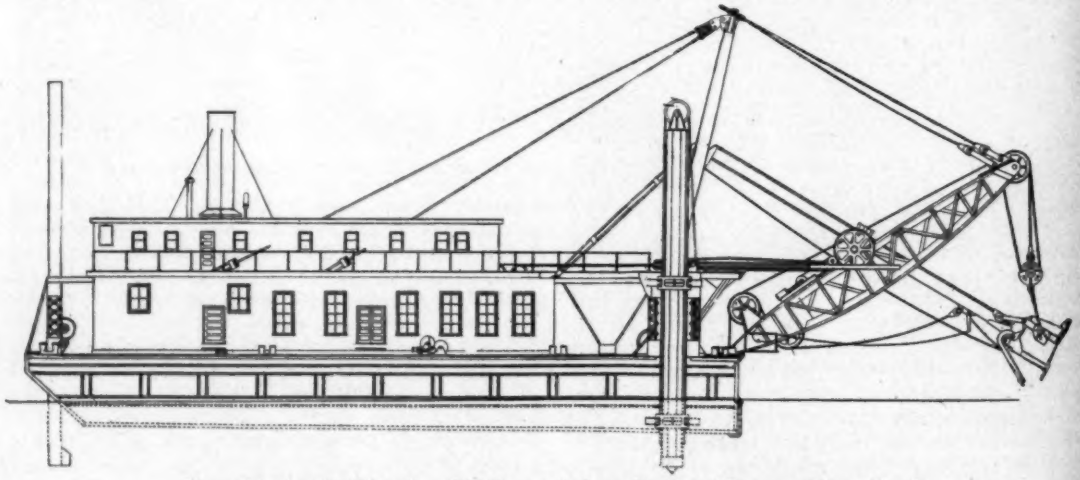


Figure No. 4—Side Elevation, Fitz Simons & Connell's 8-yard Bucyrus Dipper Dredge

and pinion, and driven by 9 inch by 9 inch double-cylinder reversing engines.

The stern spud is operated by a 9 inch by 9 inch center-valve reversing engine.

The operating levers are well forward on the dredge, situated in a small operating room, and control practically all the machinery.

The boiler is of the Scotch marine type, 12 feet 6 inches diameter by 12 feet long, built for a pressure of 150 pounds. There are two 50-inch Morison

Figure No. 5—Loading Scows

corrugated furnaces and 254 3-inch tubes. The boiler is further equipped with a 4 foot by 8 foot steam dome.

For the handling of scows there are two double-cylinder 6 inch by 6 inch tandem double-drum winches, one on each side of the deck.

The deck houses are built of wood. The upper house contains all the sleeping rooms and the kitchen and dining room, throughout the inside yellow pine is used. There are eleven rooms, all with windows, steam heat, and furnished with steel berths. Besides this there is a large and pleasant dining room, a roomy kitchen, as well as a lavatory with a bath tub.

The crew consists of a first and second engineer, two cranesmen, three deck hands, an oiler, a fireman, a night watchman and a cook and his assistant.

The dredge is being very efficiently operated by Edward Selvick. S. C. Colton is general superintendent, P. G. Connell, assistant superintendent, and Jerry O'Brien the dredge inspector for the Sanitary District. William Sullivan is division engineer.

Removing the Drill Barge "Teredo."

The drill barge "Teredo" which was blown up at Panama recently is being cut to pieces by dynamite, according to the Canal Record. It having been found impracticable to raise it entire. This is being effected by the method of using old lengths of condemned fire hose, filled with dynamite, and placed along the line at which it is desired to direct the force of the explosion. This makes a fairly clean cut, and the sections sheared off are raised by the wrecking barges, assisted by the Bucyrus dipper dredge "Paraiso". The first large section was lifted out on Monday, July 27.

The "Teredo" was purchased on April 20, 1908, from the Maryland Steel Company of Sparrows Point, Md., for $35,727. It was received, knocked down, on February 23, 1909, and re-erected at the Balboa shipways; the total cost of the vessel, erected for service, was $46,902. The barge was of steel, 112 feet long by 36 feet in the beam, and eight feet deep. The maximum draft of the vessel was five feet. It was equipped with four 8 by 8-inch engines, with the necessary boilers, to operate the spuds, and with six Ingersoll Rand "H-64" rock drills, with 5½-inch diameter cylinders, and with rails for the drill frames to slide on.

Revolving Shovel Output in Street Grading.

In our June number we published an article describing a street grading job in Los Angeles handled by Sullivan, Gabler & Kautz. The job was particularly interesting because of the systematic and accurate manner in whcih they kept their records.

We have recently received their log book covering their last job on Childs Avenue, from which we obtained the table given below.

It may be remembered that they are using an 18-B Bucyrus, equipped with a ⅞ yard dipper.

During the week from May 11th to 16th inclusive, the shovels made some very good outputs. They did not equal those made on the last job, due principally to harder material and other causes.

We give them below:

Hours	No. Wagons	Material	Est. Yardage Bank Measure
10	608	Clay	900
10	601	Clay and Rock	900
10	676	Clay and Rock	1000
10	556	Clay and Rock	850
10	703	Clay and Rock	1050
10	647	Earth and Rock	1000
60	3791		5700

This is an average of 63 wagons per hour, or about 95 cubic yards per hour.

Irishman—"Three cheers for home rule!"
Scotchman—"Three cheers for hell!"
Irishman—"You are right; ivery one should stick up for his own country."—*Exchange.*

The Excavating Engineer

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Bradlee Van Brunt, Manager and Editor

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Construction Outlook

The rate case has at last been decided. But after many months of weary waiting and watching we are destined to look in vain for any visible effects thereof upon railroad construction. The European war has, for the present at least, counteracted any good effect that it might have, and certainly would have, produced.

As to the decision itself, it has pleased no one overmuch. The eastern roads have gone begging and those in the Central Freight Association territory have received an increase of 5 per cent on all class rates and some commodity rates.

We believe, however, that there are many reasons for optimism. Three years ago in the decision of the original rate advance case, the Commission held that the railroads did not need an increase. Today, the Commission is unanimous in their judgment that they do. Indeed, the two discenting commissioners held that the eastern roads should have been favored in like manner, and that all rates except the lake and rail rates should have been raised.

The Commission made many good suggestions as to how the railways might increase their revenue. They should lose no time to co-operate with the Commission in this direction.

We believe that public opinion has begun to force upon the Commission a realization of the existing conditions, and that the indications of additional relief later are most promising. Already the railways west of the Mississippi River and east of the Rocky Mountains have begun informal communications with a view towards a general increase. It is probable that the proposed new schedules may be filed before the Commission by October 1st.

The exact effect of the European war upon the construction outlook is, at the present time, problematical. It is clear that the closure of the European market for American securities will undoubtedly have a bad effect, as no small part of our new railroad construction has in the past been financed abroad. Construction that has already been financed will, without question, proceed.

We have much to be thankful for; the temporary withholding of many projects awaiting the rate decision; the fact that through the broad minded patriotism of our railway managers, a great rail strike has been averted; an enormous wheat crop representing a very solid basis of wealth; a credit which fortunately has not been expanded; the substantial condition of general business, which after months of depression is on a most conservative footing; a reserve system which should effectually mobilize our resourses for the crop movement; and above all a cool-headed confidence in the strength of our nation to keep free from the devastating whirlpool in Europe.

Opportunities for Railroad Contractors

As we have hinted, the present depression may continue, and even if it does not we do not look for a big boom in construction work in the near future. As a result many railroad contractors will find themselves sitting around looking for jobs.

If they keep their eyes fastened upon the railroad field alone, there may be many who will sit long. We believe that it behooves them to look to other fields. Many opportunities exist which it was not necessary to sieze before.

The country is witnessing an unprecedented jump in road and highway construction. Never before have we seen the like. Moreover it is not a temporary jump, it is a development which has come to stay, and one which will not be affected by the war. There are many opportunities for railroad contractors, especially in the eastern states where construction is heavy, and in the dirt, sand-clay and gravel roads in the south and southeastern states. Idle teams, at least may be employed here most profitably. Indeed we know of several recent examples of contracts which for lack of bidders had to be re-advertised.

Levee construction is on the climb. Here many shovel outfits will find places, even though much of it

is more suitable to teams in conjunction with steam shovels, than to dinkey outfits.

The Reclamation Service will offer many opportunities in dam building and ditch construction.

A close watch should be kept on the coal-stripping fields in southeastern Kansas, northeastern Oklahoma, southwestern Missouri, northwestern Kentucky and southern Illinois and Indiana. Several railroad contractors have been very successful in their contracts to strip the great coal deposits here existing, and there are opportunities for many more.

The field is not limitless but it is very rich in directions most unexpected. Indeed we have heard of one contractor who used 60 idle teams recently, for harvesting a hay crop at an army post.

Our advice is, do not specialize when railroad construction jobs are scarse but keep on the watch of new fields to invade.

National Paving Brick Manufacturers Association's Eleventh Annual Meeting

The eleventh annual meeting of the National Paving Brick Manufacturers Association will be held at Buffalo, New York, Statler Hotel, September 9, 10 and 11.

On September 9 will be held the business meeting of the Association.

September 10 and 11 will be given over to "A Study of Brick Pavement Construction for Country Highways."

This study will engage the attention not only of the members of the Association, but a large number of engineers and road builders to whom the Association will extend an invitation to take part in the program.

The trip on the 10th will include city inspection as well as country highways.

The trip on the 11th will be in the direction of Niagara Falls, and an opportunity will be afforded aside from road construction to see that celebrated wonder and at least one power station that draws its force from that remarkable river.

Last year's annual meeting was a deparature from the indoor paper discussion of construction methods. It proved interesting and profitable to all. The Association believes that with its previous experience, this year's effort will greatly surpass that of last year.

Northwestern Road Congress to Meet in Milwaukee

The Northwestern Road Congress, which will hold its first seesions in Milwaukee, Wis., October 28, 29, 30, 31, reports much headway in the matter of securing delegates from the participating states. Representatives from more than two hundred good roads, civic, commercial, industrial and automobile organizations have already been appointed and enrolled with Secretary J. F. Keenan. Mr. Keenan is now organizing the county and town boards of Wisconsin, Michigan, Illinois, Iowa, Minnesota, North Dakota and South Dakota in the interest of the Congress, and has assurances from more than 150 counties at this time that five or more delegates will be appointed to attend the Congress from each county.

Unattached organizations of road building contractors, bridge contractors, grading contractors and civil engineers will be affiliated with the new organization, and the plan to promote a system of interstate roads connecting up the various links of state highways in the seven participating states will be developed by the representatives of the state and county highway commissions and the county boards traversed by trunk lines like the Sheridan Road, Lake to River Road, Red Ball Route, the Lincoln Highway and other established and partly developed highway systems. The plan under consideration by Secretary Keenan and the officers of the Congress is a comprehensive one.

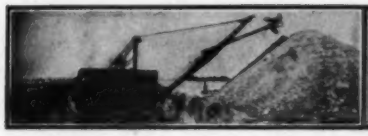
A big exposition of road machinery, material and implements will be held in the Milwaukee Auditorium in connection with the Congress, and many of the smaller machinery firms are taking advantage of the opportunity offered by the Congress to exploit their lines before the large purchasing element that will be attracted to the Congress and the further fact that a large number of the large machinery producers will confine their exhibits this year to the Chicago Convention of the American Road Builders Association.

REVIEW OF BOOKS and CATALOGS

We shall be glad to review in this column such books and catalogs as are sent to us. Books reviewed in these columns will be supplied by The Excavating Engineer Publishing Company at the prices named.

THE PANAMA CANAL, by Frederic J. Haskin, author of "The American Government," etc. Doubleday, Page & Company, Garden City and New York. 5"x8"—386 pages, and cloth cover—illustrated—Price $1.35 net.

This is a book for those to whom technical descriptions and figures are a strange language. Written by a well-known news paper correspondent, the book is light, interesting and breezy in its style. It is rich with superlatives and full of a patriotic pride and enthusiasm inspired by the great work which our engineers are just completing. Graphic illustrations take the place of tables of figures. The machinery of construction and operation is described in such a manner that "those who run may read." Life on the Canal Zone, the spirit of the workers, the history of the canal projects, the controversy with Columbia, relations with Panama, the fortifications, the fixing of the tolls, the handling of the traffic and other general topics bearing on the Canal are delt with clearly and accurately. The chapters on the engineering features have Colonel Gorthals' endorsement. It is a splendid book for the great mass of laymen who want to know why, as American citizens, we should be so proud of this great achievement.

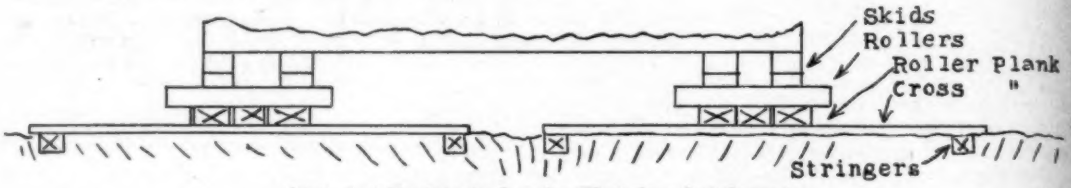


FIELD NOTES

DISCUSSION IS INVITED FROM MEN IN THE FIELD ON SUBJECTS HERE PRESENTED

How to Operate a Dragline Excavator over very Soft Ground

The success attending the operation of a dragline over soft ground depends a great deal upon the manner of planking under the rollers. George Stanberry has given us a description of the manner in which the Marshall Contracting Company, of Kansas City is succeeding in working a class 14 Bucyrus machine on a drainage ditch job near Viro, Florida. The ground is of a peaty character. The weeds and grass roots on top form a mat which supports the weight of a man although in many places it is impossible to stand. A 6 ft. bar can be shoved down its full length with one hand. It is impossible for a team to go upon it. At first the machine was carried on 6 ft. planks laid cross-wise and close together under each set of skids, the rollers traveling on other plank laid lengthwise on top of these. This would not hold the machine, the material squashing out at the sides. The final arrangement which carried this machine without difficulty, even where a man could not stand, was as follows:—3″x12″x12′ planks were laid cross-wise and close together under each set of skids. Single 6″x6″ stringers were laid under the ends of these planks parallel to the skids. These stringers were forced down into the ground by the weight of the machine on the plank and apparently prevented the material from being squashed out sideways from underneath the plank. The rollers ran on 3 lines of 6″x12″x14′ timbers laid close together, at the center of the cross planks and having staggered joints so as to distribute the load of the machine more evenly. The stringers are the only pieces which actually have to be dug up out of the mud for they hold the cross planks high enough so that they can be picked up easily. Four pitmen pile up the plank so that the dragline can pick them up with a chain hooked to the bucket and then re-lay them fast enough so that the machine is not delayed in moving. Its only lost time is swinging the plank. We publish a stretch of this arrangement herewith.



Method of Planking for Dragline Work Over Soft Ground

Simple Method of Removing Skids from Dragline Excavator

A simple method of removing skids from a dragline excavator without the tedious and lengthy process of jacking is as follows:

Bolt two timbers to the cross beams of the subbase parallel to and just inside of the skids. These timbers should be about an inch deeper than the skids, tapered off at one end. They act as temporary skids. The dragline is then run up on this temporary set of skids, thus giving sufficient clearance under the old skids to remove the rollers and planking. When this is done, the skids may be removed and replaced with the minimum of time and labor.

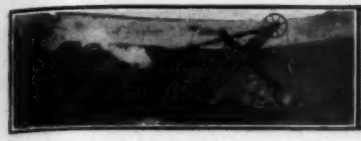
We are indebted to Mr. J. F. Schmidt for this device.

New Instruments for Measuring Earthwork

Measurement of earthwork in railroad fills and cuts constitutes a large part of the field work in the Federal evaluation of railroads. The work involves innumerable cross-sections, and the importance of any special means of expediting the work or minimizing the computations is apparent. An instrument has been devised which entirely eliminates the need for trigonometric tables in the stadia work and reduces the calculations to simple multiplications and additions. The instrument is stripped of all attachments not needed for this work alone and is designed to permit the most rapid use.

Engineering Record.

"You'll find my waist an insurmountable obstacle," said she.
"How so?"
"There's no getting around it."—*Exchange.*



DEVICES YOU OUGHT TO KNOW ABOUT

An Effective Rail Clamp

The essential features of a serviceable rail clamp may be summed up as, simplicity in construction and in manipulation, lightness and strength. These features have been very successfully combined in the Bates rail clamp illustrated herewith.

The Bates clamp grips the ball of the rail and the wedge is driven across top.

This clamp was invented and patented by W. H. Bates, superintendent of steam shovel repairs on the Panama Canal and the patent subsequently acquired by the Bucyrus Company, who are now manufacturing and selling it.

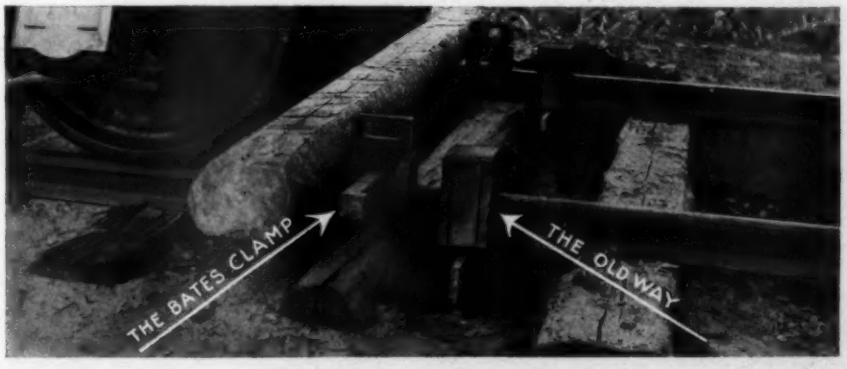
The most striking feature of the clamp is its ease in manipulation. As our views show, it works much as does an ordinary pair of ice tongs. It grips the ball of the rail and the wedge instead of being driven below the base of the rail, as is the case with other clamps, is driven across the top. The advantage of this is graphically illustrated by our views. The old style requires a hole to be dug for it when the ties are buried in the earth, which is generally the case. The Bates clamp being on top of the rail is independent of this condition. Furthermore, when the shovel track is on muddy or wet ground it is often very troublesome to get under the rail, particularly in winter when the ground is frozen.

Again, the Bates clamp is independent of this. The old style must go between the ties, as shown; the Bates clamp may be put anywhere without regard to the position of the ties.

The simplicity of its construction is another strong point in its favor. It consists of two steel castings hinged by a heavy pin. It is carried by a convenient handle hold, cast in one of the pieces. It is placed over the rail and a tapered steel wedge driven, as shown. It is easier to put on and take off than the old type, and possesses the additional attractive feature of being cheaper.

The old style requires the place to be dug out for it when the ties are sunk. Low position of wedge causes trouble in muddy or wet pit.

They are manufactured in three sizes; for 90 to 100 pound rail, for 70 to 80 pound rail and for 50 to 60 pound rail.



Can be put on the rail anywhere without regard to position of the ties. **Must go between the ties**

SHOTS FROM THE FIRING LINE

Alabama

Notes from Birmingham

By R. S. Byron

The Dailey Construction Co. have just completed their fill work across Chattanooga Creek for the N. C. & St. L. Ry. They are now moving their outfit onto the Southern work near Danville, Va. as they have taken a sub under J. H. Dunavant & Co. They will use their 70-C Bucyrus shovel on this work.

W. H. Bankert is running and F. Moses is craning a 40-C Bucyrus shovel for Geo. F. Ramsey on his levee work near Marion, Ark.

H. C. Hodges was a caller in this city last week and reports that his work near Princeton, Ky. is moving along very nicely. This work is double-tracking on the I. C. R. R. He is operating a 65-ton Bucyrus shovel on this work.

The steel mills around this territory seem to be going up to their average capacity, and no reports are heard that they are shutting down these or their steam shovels in their mines.

Most of the contractors along the Mississippi River are looking very down hearted these days over the possibility of the Rivers and Harbors bill not being passed. Many of them are feeling a little encouraged over the fact that it is probable that Congress will not adjourn for some little time, and that this will give more time to pass the bill.

T. W. Crow stopped in this city a few minutes the other day on his way from his Florida work to his Montana work. Mr. Crow states that the phosphate mining has been shut down all over Flordia owing to the war as most of the countries now at war were heavy consumers of phosphate. Mr. Crow thinks that the phosphate companies will start up again within the next 30 or 60 days, as most of them are arranging to store the phosphate and be ready to ship when the war is over.

J. F. Wolfe is installing a 40-C shovel for the Bucyrus Co. at Marion, Ark.

The Paducah & Illinois R. R. has awarded contract to Morris, Shepherd & Dougherty of St. Paul, Minn. This work is for building a road a distance of 12 miles into Paducah. This is very heavy work and will require a number of shovels.

C. W. Lane & Co. are getting along very nicely with their Southern yard work in Memphis. They are using an 85-C Bucyrus and a model 28 Marion on this work.

J. S. Whitley and W. B. Oubre are operating a class 24 Bucyrus dragline for Hearin & Ryan on the Mt. Olive levee near Sunshine, La. This machine is at present building a new levee.

The Louisiana Contracting Co. of Baton Rouge, La. are operating one of their class 24 Bucyrus draglines below New Orleans. This machine is building new levee, the work consists of about 135,000 yards.

Hearin & Ryan of Baton Rouge, La. was awarded contract for building the Carroll levee on the Mississippi river. This contract consists of about 80,000 yards. They will use their class 24 Bucyrus dragline on this work.

The A. G. S. Ry. has awarded about 22 miles of double-track work near Meridien, Miss. to M. M. Elkan of Macon, Ga. This is very light work. The average cutting being about 5 feet. It is all team work.

Levee work that was to be awarded on August 3, by Major Dabney at Clarksdale, Miss. was held up owing to the inability of the levee board to float the bonds to carry on this work. This work will probably be re-advertised.

Arkansas

Judsonia—A contract has been awarded to Edgar J. Hohn, Southern Trust building, Little Rock, for approximately 600,000 cubic yards drainage excavation for one main and twenty-two laterals at .094 cent per cubic yard.

California

Los Angeles and Vicinity

By G. H. Hutchinson

A. H. Christensen, treasurer of the Utah Construction Company, with headquarters in Salt Lake City, was a caller at our office yesterday, while on his way to San Francisco. We have a hunch that Chris was chuck full of information that he might have given us, but did not, regarding the 49 mile stretch of work on the San Diego & Arizona Railway. Chris is a pretty big man, physically and mentally, and consequently we refrained from trying to scare any information out of him relative to this job. Our office is on the twelfth floor, about 180 feet from the side-walk, and the writer prefers to go down in the elevator.

Clarence L. Crandall, formerly of the Reynolds-Ely Construction Company, and his family, are now permanent residents of Long Beach, Cal. Clarence is trying to break into the game here, and is on the lookout for a good sized contract.

Billy Gallagher is running a 70-C for the San Diego & Arizona Railway Company, loading ballast, about 45 miles out of San Diego, in Mexico. As Bill weighs about 215 pounds, he would make an easy mark for the Mexican sharp shooters. It is needless to say there are none of them around or Bill would have been back in town before this.

Hank Riebel has just returned from Santa Rita, N. M., and advises all of the night shifts on the shovels have been laid off. The following steam shovel runners have returned to Los Angeles: Horace Turnham, John Curwin, Chas. Stokes and Billy Elmore. The reduction of the force, we understand, is on account of the war in Europe, and the low price of copper.

The Utah Copper Company operating at Bingham, Utah, laid off their night shifts, and we understand there will be no Sunday work for the present, either at the mine or at the mills.

John Anderson is setting up three new revolving shovels for the Los Angeles Highway Commission.

Joe La Bell is operating a shovel for the Harbor Department at San Pedro.

H. M. Quincy is in town, having just returned from a shovel job in connection with loading ballast for the Pacific Electric Railway Company.

T. K. Beard of Modesto, California, was low bidder on the 9½ miles of state highway between Alcatraz and El Capitan. His price was $82,168.00; the engineer's estimate was $94,935.00. There is about 171,000 yards of excavation on this piece of work.

If you want to hear some fish stories, drop around to the offices of Sharp & Fellows, railway contractors, in the Central building, this city. The reason of it is, Sharp & Fellows quit railroad building long enough to put in about ten days fishing around Catalina and Clemente Island, in Mr. Fellow's yacht,

UMI

"Virginia D." Charley Sharp states the yellow tail bass were so hungry at Clemente Island that he had to hide behind the mast to bait his hook. Fellows has been busy since his return hunting up new tackle, he hooked a number of big ones that about put him out of business, and from last reports they were still going, some of them with a string on them 300 or 400 feet in length. We have in mind suggesting to Mr. Fellows some additional equipment for his yacht for next season's fishing, consisting of a 14-B and about 700 feet of tiller rope. The revolving feature of this tackle is especially adapted for this purpose.

Hank Riebel and Tom Cane are operating an 18-B for Kautz & Gabler on the Los Felis road.

Harry Quincy is operating an 18-B for J. R. McKnight on the Santa Ana road work.

The Los Angeles correspondent of the Excavating Engineer put in ten days at Catalina and Clemente Island fishing. We have a good many fish stories that we are not going to give out to the public. Fishing with us, is a good deal like our business—we hooked a lot of them but they got away.

San Diego—Utah Construction Co. Ogden, Utah, is reported to be low bidder for completion of San Diego & Arizona Ry., bids for which were opened some time ago. This work will cost $3,000,000 or $4,000,000, and will include several tunnels.

Sacramento—A contract has been awarded to Palmer & McBryde Construction Co., at $166,216.40, for constructing sections B-2 and C, route 3, in Shasta county.

Canada

Woodstock, N. B.—Rod McDonald is with Kennedy & McDonald here on their St. John & Quebec railroad work. He advises us that they are operating 60 and 70-C Bucyrus shovels.

Princeton, B. C.—Glavin, Yungbluth & Co. are operating two Bucyrus shovels at this point.

Belleville, Ont.—The Dominion Construction Company has made surveys for the construction of a new line on the C. P. R. to Bethany Junction. The work will be started within a month. The company may also get the contract for the road from Shannonville to Kingston.

Toronto, Ont.—Work on the harbor development here will be continued in accordance with the plans laid out at the beginning of the season, despite the conditions in Europe. The Harbor Commission, of which Alex C. Lewis is secretary, will expend approximately $1,400,000 this year on reclamation work, pile driving, piers and the excavation of the ship canal in Ashbridge's Bay.

Colorado

Grand Junction—F. A. Mengel, formerly with the Althouse Placer Company of Holland, Ore., whose proposition was described in our July number, is now with Winston Bros., of Minneapolis, on a large irrigation project here. Mr. Mengel has erected a new Bucyrus class 20 dragline for Winston, and states that the job will last about a year.

Denver and Vicinity

H. N. Steinbarger

Frank Hoffman was in Denver recently. Our correspondent was out. From all reports he was wise to be absent, for the seat of war was suddenly changed from European shores to Denver, with the Dutch on the run. Bad enough, he says, to have to appear before the tribunal of Judge Dan Griffin and explain matters then to have a little crazy Dutchman running around telling of his escapade, when he had all newspapers and everybody else "bought up" was too much. Says there is a limit and he won't reach the limit until he has annihilated the whole tribe of Excavating Engineer correspondents. We are of the opinion that an innocent party was about to be attacked. We wonder why Jim Davies wasn't molested. He got off "Scott free," whatever that means, and when he was really at the bottom of the whole thing, telling the whole story in an outspoken manner, and never mentioning the necessity of keeping the story out of print. By the way did you read the story? If you didn't better get a copy of the August number of the Excavating Engineer and read up. It is well to be posted on Who's Who in your neighborhood.

That Jim Davies is a smooth article! Slips around dropping a word here and there about somebody that he has a grudge against, until he has the "ball rolling" merrily along gathering speed and volume as it goes. Others take up the words and human nature does the rest until there is a big yarn, interesting and exciting sometimes, to be told. Into the whirl steps an innocent non-combatant takes up the thread of the story pushes it along and "gets in" so bad that his life is threatened. What do you think of a fellow like that. We leave it to you to deal out justice and put the blame where it belongs.

"Colonel" Dan Griffin, manager of the Denver office of Kilpatrick Brothers, is moving his office. There is one long wail of objections on the part of every local contractor because they don't know where they are going to find as pleasant an office and as big a table to put their feet under as Dan Griffin's has been. The office is being moved for the present to Guernsey, Wyoming, where it will be located for perhaps ten months during the construction of the new line of the Burlington railroad. Mr. Griffin will have active charge of this construction and wants to be close to the scene of operations. Dan has long maintained a home in Denver and will probably always keep his residence there and naturally will make frequent trips to visit his family and see his innumerable friends.

Well what do you think of this? The following note was recently received by our inter-mountain correspondent " 'Salida' said to say hello. 'We' are anxiously awaiting the current issue of your valuable publication. Come up and see us stometime." Signed—R. M. H.

Now I wonder if Bobbies' friends throughout this entire district can read between the lines. If this were possible they would have full details of one of the nicest little romances this part of the country has ever seen. One of the regular star gazing, moon struck romances that we read about—the kind that makes everybody's heart feel tender and grow fonder. Well we don't blame Bobbie, for we have full confidence in the judgment of our intermountain correspondent, and we have his word that it is all he could do to keep from remaining in Salida and giving Bobbie a run for his money. Even after he took the train for Pueblo, one day about the middle of June he says he very nearly took the next train back, the only thing that prevented being the presence of Bobbie in Salida.

The above note was written from Guernsey, Wyoming. Note it says 'we'—with quotation marks around the 'we'—are anxiously awaiting, etc. Also note it also says "come up and see 'us.'" Now we wonder just what the "we" and the "us" means.

It's always been a mystery to us regarding the whereabouts of Bobbie when there is no railroad work or steam shovel work going on. He drifts into Denver but nobody sees him. Putting two and two together evidently he drifts right out again through the Royal Gorge on to Salida. This has occurred three or four times since last December. All reports stated that he was in Denver during the holidays. Nobody saw him. Later on he was again reported in Denver, but again nobody saw him. Our correspondent feels now that he understands the matter thoroughy for he saw Bobbie, (not alone) with his own eyes in Salida and solved the mystery. More as a joke he threatened to "write them up" but immediately forgot it—purposely of course, feeling that the psycological moment had not arrived, but the above note was too much. Its getting on our nerves, and to such an extent

that we have decided that a trip for our correspondent to Salida is necessary. He will leave for Salida—get it—before this issue goes to press.

Press reports state that negotiations are under way by which the Moffat tunnel will be constructed without the assistance of the city of Denver. It will be remembered that the Supreme Court of Colorado issued a mandate against the bond issue, which the people of Denver voted last February. Two plans are under consideration; one that the tunnel shall be financed by a new corporation and leased under option to the Denver and Salt Lake Railroad; the other that the new corporation or syndicate shall provide the funds for the extension, leaving to Newman Erb, president of the Denver & Salt Lake Railroad, the duty of constructing the tunnel or of operating the road in its present state until such time when he is able to raise the money to build the tunnel out of his own resources. The new corporation will be formed by Colorado, Utah and Eastern capitals. It is not known, however, what result the European war will have on this project.

Florida

Bartow—Seaboard Air Line R. R. is reported to have made appropriation for 20 mile extension southeast from Bartow.

Miami—Atlantic Coast Line R. R. proposes extension from Sebring south to Big Cypress swamp, skirting Lake Okeechobee.

Georgia

Pelham—A road which will be known as the Cairo, Pelham & Moultrie Railroad Company has been incorporated to construct railroad to connect Pelham, Cairo and Moultrie, Ga., distance 50 miles. D. B. Turner, Pelham, Ga., is interested.

Atlanta—The following contracts have been awarded by the Southern Railway Company, 315 Southern Railway building, Atlanta, Ga., for completing double-track between Atlanta and Washington: To C. W. Lane & Company, Atlanta, Ga., for section between Amherst and Tye river, 8 miles; H. J. Dunavant & Company, Chattanooga, Tenn., for section between Tye river and Elma, Va., 11 miles; Robert Russel, Danville, for section between Danville and Dry Fork, Va., 12.95 miles. Also by Alabama Great Southern Railroad to M. M. Elkan, Macon, Ga., for constructing double-track between Meridian and Russell, Miss., 6.3 miles, and between York, Ala., and Toomsuba, Miss., 15.5 miles.

Illinois

Chicago and Vicinity

H. W. Nelson, formerly with the Robert Grace & Co., has a large contract on the Illinois Central at Fulton, Ky. He has purchased a new 70-C Bucyrus shovel for this work, with 20 12-yard Western cars and a Western spreader. His contract amounts to 100,000 cubic yards.

Winston Bros. have another big section of the Illinois Central work at Katawa, Ky. Earl Cravens is in charge of the work.

Walsh Construction Co. have another section on the Illinois Central at Iron Hill, Ky. Tom Walsh who was in Chicago a short time ago says that they are doing splendidly on this job and on their Northwestern work at Peoria.

Robert Russell has a 2,000,000 yard contract on the Southern at Danville, Va. He has sublet 700,000 yards of this to Costello Brothers.

Mike Hayes of Hayes Bros., Janesville, Wis., has startled his friends with the report that he was quietly married five or six months ago. Mike being of a bashful disposition, has skillfully kept the matter under cover, together with his bride—leave it to Mike to make a good selection. We are told that he has just returned from a trip to Cuba and Panama with his bride, and has a big team outfit idle and hungry for work.

S. M. Boorham, traveling engineer for Clapp, Norstrom & Riley, has discovered a new and more satisfactory route from Milwaukee to Fairchild, Wis. Instead of taking a bee line from Milwaukee west, he tells us that it is far more pleasant to travel to Chicago and thence northward. Some of his friends are of the opinion that there is another reason except that offered by the luxury of the Golden Special.

Walsh Construction Company have sublet a one-shovel job to Alex McGavock at Iron Hill, Ky. on the Illinois Central. He is using his Bucyrus shovel with two new Davenports and some new Western cars.

Chicago—Details of a new plan for an 8-ft. waterway from Chicago to the Illinois River are now being worked out and it is probable that the Illinois Legislature will be asked for an appropriation with which to undertake the improvement. The chief features of the scheme are the rehabilitation of the Illinois and Mississippi canal from Joliet to Ottawa, the construction of a dam in the Illinois river at Starved Rock and the connection of the canal with the Illinois river near Ottawa. A rough estimate of the cost of the development is $3,000,000 to $4,000,000. Of this sum perhaps 25 to 30 per cent would be used for the rehabilitation of the old canal and the establishment of the 8-ft. depth. A good share of the remainder would be used for deepining the lines between La Salle and Ottawa to 14 ft.

Centalia—F. M. Windham is finishing his work in southern Illinois, and has a machine and team outfit idle.

Niagara—Mulvill Bros. have about completed their work near here, and are in the market for any kind of a grading job, large or small.

Elgin—A contract has been awarded to Walter McLean at about $18,000 for excavating 15,000 yards for state aid road at Harvey, Cook county, besides supplying 11,000 yards of gravel and sand filler.

Indiana

Rensselaer—Bids will be received uutil September 16 at the County Court House, for the construction of Marble ditch and laterals, requiring 5,050,000 cubic yards of excavation. Clifton J. Hobbs, commissioner of construction, Kersey, Ind.

Iowa

Mrs. L. S. Cooper & Sons have just finished their work on the C. F. V. N. electric line at Alburnett, Ia., and have their team outfit idle.

Kansas

Notes from Pittsburg

By W. S. Russell

There has been a slight improvement in the coal business over last month, with prices about the same. We quote as follows: Lump per ton $2.00; Nut per ton $2.00; Mine run per ton $1.65; Mill run per ton $1.50; Slack per ton $1.35; F. O. B. railroad cars at the mines.

The conference between the Southwestern Interstate Coal Operations Association, and the United Mine Workers of America district No. 14, is about through at Kansas City and a settlement has been reached after granting concessions on both sides. The scale of wages remains about the same.

The street car strike at Pittsburg is still in effect without any prospect of adjustment. The motormen and conductors have been out since July 7th, their demands are very unreasonable and they have no sumpathy from the general public, who are put to great inconvenience and expense. The Joplin and Pittsburg

Electric Railway Company are being commended for their attitude in the matter, in not trying to import strike breakers to cause trouble and disturbance.

There are now 30 coal-stripping steam shovels in the Pittsburg district, the last one to come in is for the Whitmer Contracting Company, a new firm who have a contract to strip coal for Jackson and Walker of Witchita, Kans., who handle the Santa Fe railroad coal lands. The stripping shovels are practically all working which demonstrates that coal stripping is a good business the year around.

The Bucyrus Company have just finished installing one of their 175-B 3½ yard steam shovel for the Perry-McMahan Coal Company on their field near Rich Hill, Mo. John Elliott was in charge of the erection.

The Liberal Coal & Mining Co. are a new coal-stripping firm, who have leased about 300 acres of coal land about 3 miles south of Liberal, Mo., on the Frisco R. R. The overburden runs from 10 feet to 28 feet in depth, consisting of soft gray shale. The coal is from 24 inches to 30 inches thick. The members of the firm are J. H. Vincent and E. A. Shepardson of Pittsburg, Walter Webb of Liberal and others. Their office headquarters will be at Liberal, Mo. A steam shovel plant is now being installed.

W. E. Rogers has leased the coal-stripping plant formerly operated by the Haynes Coal Mining Co. at Ardath, Mo., about 3½ miles southeast of Arcadia and will operate the 95-ton Vulcan revolving steam shovel, together with tipple, tram cars, track, etc., located on the Kansas City Southern R. R.

The 175-B Bucyrus steam shovel recently installed for the Canal Fuel Company at Chicopee has dug its way down to the coal and has over 500 feet now uncovered. This coal is being shipped to Jackson and Walker for the Santa Fe railroad.

The Whitmer Contracting Company of Pittsburg, Kansas represented by D. H. Whitmer, who will manage their coal stripping operations, is having a model 271 Marion steam shovel installed on their field about 2½ miles north of town. They are also putting in a first class outfit of tipple, screens, tram cars, track, Davenport locomotive, pumps, etc., and expect to be in operation by the middle of September. They have a 300 acre field to strip, which is 12 years work for two steam shovels.

Smith, Scott & White, the firm who are stripping coal near Chicopee for the Central Coal & Coke Co., have recently installed a revolving crane for handling the coal which appears to be the best of its kind yet put in use. It has a 60 foot boom and is placed on top of the coal. The loaded cars are hoisted out of the pit and placed on the tram track up on the bank alongside the cut. The empty cars are lowered down into the pit and loaded by hand. This machine will handle all the coal the steam shovel can uncover at an economical expense.

This firm are now operating two 175-B Bucyrus steam shovels. C. Pinkerton is engineer, and B. Williamson cranesman, on No. 8. A Wallace is engineer, and C. Ebbs cranesman, on No. 9. Geo. Wickware is superintendent.

The Ellsworth-Klaner Company are operating two model 270 Marion steam shovels near Chicopee, stripping coal for the Central Coal & Coke Co. Bruce Weekley is engineer, and C. B. Tinker cranesman, on one, W. R. Wright is engineer, and Geo. Farley cranesman, on the other.

This company is also stripping coal for the Pittsburg-Midway Coal Co. with a model 250 Marion shovel. C. O. Dunbar is engineer, and A. M. Herbeck cranesman.

J. H. Klaner is the active manager of operations. Their office is in the Globe building, Pittsburg.

The Roy-Millner Coal Company of Weir City are running their 150-B Bucyrus steam shovel double shift. A. W. Thompson is engineer, and J. T. Lochead cranesman, on the day shift. Ed. Willy is engineer, and J. H. Endlsey cranesman, on the night shift.

The Junior Coal Mining Co. are operating two Marion steam shovels, one near Weir City on which May Adams is engineer, and Robt. Wilson cranesman, also one near Scammon on which Wm. Bartino is engineer, and Frank Malle cranesman. Jas. Reed is superintendent.

The Fleming Coal Company have a 175-B Bucyrus steam shovel stripping their field south of Scammon on which Geo. W. Jones is engineer, and Albert LaRue cranesman. Harry Jones is superintendent.

The Miller-Durkee Coal Co. are stripping near Scammon with a 95-ton Vulcan steam shovel. Geo. Devard is engineer, and Henry Sanderson cranesman.

Receiver, E. I. Martin, of the Pratt-Durkee Coal Co. at Skidmore is now doing good work with the 95-ton Vulcan steam shovel. Sam King is engineer, and Vern Watkins cranesman. Mr. Martin says he is shipping over 300 tons of coal per day which includes that produced by the shaft mines in addition to the steam shovel output.

The 175-B Bucyrus steam shovel recently installed at Chicopee for the Canal Fuel Company is running every day with Roy Davis as engineer, and Arthur Glover cranesman. John Thomas is superintendent.

The Besse-Cockrill Coal Co. of Weir City are operating a model 250 Marion steam shovel, about a mile and a half south of town, with Frank Jenkins as engineer, and J. R. Garrett cranesman. They are also loading the coal with a small revolving steam shovel having a ¾ yard dipper on which Otis Scranton is engineer. No cranesman is required. C. C. Cockrill is manager of operations on the field.

The Pittsburg-Scammon Coal Co. have moved their 150-B Bucyrus steam shovel to a fine field of coal about a mile south of Scammon on the Frisco railroad and are making the dirt fly. W. J. Donovan is engineer, and Mike Flaherty cranesman. Harry Miller is superintendent in charge of operations.

The J. J. Stephenson Coal Co. are stripping a field at North Pittsburg with a model 250 Marion steam shovel. W. S. Little is engineer, and Jas. Deckhard cranesman.

The Clemens Coal Company have a 150-B Bucyrus steam shovel at work stripping a fine vein of coal at North Pittsburg. J. M. Jones is engineer, and John Rhodes cranesman. John Cunningham is superintendent.

This company has recently installed a 175-B Bucyrus steam shovel near Minden, Mo. on a 300 acre field and is now stripping with Ed. Flaherty as engineer, and A. Kirkwood cranesman. John Boyer is superintendent.

The Pittsburg Paving Brick Co. have a Marion shovel stripping in a small field joining their brick plant at North Pittsburg which takes most of the coal produced. H. A. Jones is engineer, and Guy Bray cranesman, on the shovel.

The Nesch Coal Company are stripping a 150-acre field at Frontenac with a 175-B Bucyrus steam shovel. F. A King is engineer, and Jas. B. Nitchlam cranesman. A. A. Hummel is superintendent. The coal is for the Santa Fe railroroad

The J. J. Stephenson & Son Coal Mining Co. have recently installed a model 251 Marion steam shovel on their 170-acre field east of Midway, with Henry Arnold as engineer, and B. F. Barbour cranesman. W. H. Stephenson is manager of field operations.

The Patton Coal & Mining Co. are stripping coal for the Santa Fe railroad with a model 251 Marion steam shovel about a mile and a half north of Frontenac. Ed. St. John is engineer, and Roll Emmett cranesman. Earl Patton is general manager of field operations.

The 150-B Bucyrus steam shovel operated by the C. H. Markham Coal Co., with Fred Gebhart as engineer, and Elmer Davis cranesman, is doing good work stripping a 160-acre field near Curranville on the Kansas City Southern R. R. This shovel is the first Bucyrus to enter the field two and one-half years ago.

The Packard McWilliams Coal Co. are running a Marion shovel on their coal stripping near Fuller. Ed. Lucia is engineer, and Doc Shepler cranesman. The coal is taken out of the pit by a revolving crane placed on the main ground level in 5-ton tram cars.

The W. W. Patterson Coal Co. are stripping with a Marion shovel near Alston on the Frisco railroad. J. O. Green is engineer, and A. Chancellor cranesman.

The Cherokee-Girard Coal Co. are stripping a field north of Minden with a model 251 Marion steam shovel. V. W. Pelton is engineer, and J. C. Steele cranesman. J. C. McFarland and Oscar Hubert are giving their personal attention to daily operations.

The 150-B Bucyrus steam shovel operated by the Moka Coal Co., with Elmer Keeney engineer, and F. L. Philps cranesman, is stripping a 165-acre field one mile south of Milberry. Lee Bigley is superintendent in full charge of field operations. This plant has been very successful and they have decided to put in another steam shovel this fall.

The Pierce Coal Company are stripping a 160-acre field three miles north of Mulberry with a model 251 Marion steam shovel. A. C. Munch is engineer, and Ray Baintner cranesman. W. H. Packard is superintendent in charge of operations. The coal is taken out of the pit in 5-ton tram cars by a revolving crane placed on the main ground level.

W. E. Rogers is operating a 95-ton Vulcan steam shovel stripping coal at Ardath, Mo., running double shift. Frank Daubin is engineer, and Sam Daubin cranesman, on the day shift; with Joe Jenkins engineer, and John Rogers cranesman, on the night shift.

C. F. Rabbitt of St. Louis, representing the Arthur Koppel Company, was at Pittsburg recently and secured an order for a lot of tram cars.

R. K. Papin of St. Louis, general agent for the Davenport Locomotive Co. spent 3 or 4 days in Pittsburg recently and secured an order for a 15-ton locomotive.

E. S. Nerius of Kansas City, manager Nerius Coal Co., was at Pittsburg a day or two last month.

Lee Bigley, superintendent the Moka Coal Co., at Mulberry, spent several days at Pittsburg last month.

There are good opportunities for parties having means to engage in the coal stripping business in the Kansas field. Strip coal land can be bought or leased at reasonable prices. For further information, write the Pittsburg Machinery Co., 806 North Broadway, Pittsburg, Kansas.

The Pittsburg Machinery Co. are located at 806 North Broadway, where they occupy an entire building with a large stock of coal miner's, mill and contractor's supplies, tools and machinery, engines, pumps, pipe, motors, wire rope, etc. They also carry a stock of repairs for Bucyrus steam shovels. John Frain and W. L. Sullivan are always on hand and ready to look after the interest of their customers.

The Interstate Coal Company, an association of coal strippers are represented in Kansas City by J. C. Arnold, general sales agent with offices in the R. A. Long Building.

Kentucky

Paducah—A contract has been awarded by Paducah & Illinois Railway Company for 12 miles of line for the Chicago, Burlington & Quincy Railroad Company, to Morris, Shepard & Dougherty, 801 Globe Building, St. Paul, Minn. This will include 1,500,000 cubic yards excavation.

Dulaney—Richard Handy secured about 40,000 yards of grading on the Illinois Central R. R. from Joyce Bros. & Bagwell, near here.

Louisiana

Baton Rouge—John E. Ryan of the contracting firm of Hearin & Ryan, of Baton Rouge, died at his home in New Orleans on August 4th. Mr. Ryan was one of the best known contractors on the River and was extremely popular among his friends and associates. He had been in the contracting business for twenty-five years and had built up for himself a wide reputation as a builder of levees and as a dredger. This firm, at the present time is operating a Bucyrus dragline near here.

Baton Rouge—The Louisiana Contracting Company has been awarded by the commissioners of the Port of New Orleans, La. contract for dredging in the Mississippi river, filling and clearing sight for cotton warehouse and terminal, amounting to approximately $180,000.00.

This work is to be done as follows: retaining levee to be put in with dragline machines, dredging and grade raising with a 20 inch hydraulic dredge.

O. O. Ogden, treasurer and general manager has entire charge of this work.

Minnesota

Duluth and Vicinity

Contract has been awarded to Jas. Wilkins of Park Rapids, Minn., for constructing State Rural Highway No. 9 from Latona to Park Rapids, a distance of 9 miles, at $4,113.00.

Contract for construction of the first twenty miles of the new Grand Marais & Northwestern R. R., to be built from Grand Rapids to Ely, awarded to John Bergman of Duluth.

Contract has been awarded for constructing judicial ditches at Fairmont, Minn., as follows: To J. N. Eltgroth & B. W. Tyler, Fairmont, ditch No. 34, $4,350.00; to W. C. Markland & Co., Fairmont, ditch No. 39, $36,990.00; E. J. Babcock, Redwood Falls, ditch No. 40, $8,200.00.

All bids opened August 11th by county Auditor for constructing judicial ditch No. 2 at Slayton, Minn., aggregating in length 94,275 ft., have been rejected and new bids desired about October 1st.

Donald M. Philbin, prominent railroad and mining man of Minnesota, died at his home in Duluth on August 6th, after an illness lasting about a year. Until the first of the year he was general manager of the Great Northern Ore Properties, resigning to take a trip abroad in the hope that his health would improve. Mr. Philbin was considered an expert in ore transportation, as well as a first-class mining man, and was well known throughout the middle west.

Contract for ditch No. 11, 31,665 cubic yards was awarded to Kohler Construction Co., Frazee, Minn., at $4,184.00.

Contract for ditch No. 28, 833,859 cubic yards of excavation and incidental construction work, was recently awarded to D. A. Foley of Aitkin, Minn., at $108,000.00.

A blast furnace plant designed to treat the manganiferous ores of the Cuyuna range is to be built by the Dell Development Company at Duluth. The first unit of the plant will have a capacity for treating fifty tons of metal a day, and it is expected to be ready to go into operations by September the 15th. In the opinion of experts the enterprise will be of great importance to mine operators on the Cuyuna range, as in the test plant established at Iron Mountain, some time ago, it was proved that the process will metalize the ore, and grade the metal at a much smaller cost than any present known method.

E. K. Coe, county engineer, has completed preliminary plans and estimates for proposed drainage ditch No. 3 of St. Louis county. The total length of the ditch and laterals will be 93 miles, requiring excavation of 902,000 cubic yards of earth, 27,500 cubic yards of rock, grading 80 miles of roadway, constructing 66 bridges and installing 315 galvanized culverts. Estimated cost of the work, $185,000. About one-half of the acreage to be drained is heavy swamp and lies on both sides of the Little Fork river and its branches, the Sturgeon and Rice rivers, and Flint creek. O. Halden, county auditor.

Mississippi

Laurel—Work will probably be started soon by the New Orleans, Mobile & Chicago Railroad Company, on proposed line from Beaumont, Miss., to Waveland, La. A. F. Church, Laurel, Miss., superintendent.

Missouri

St. Louis Notes

By A. J. Michel

Capt. J. A. Ware, room 308 Houser building secured a contract on the Wabash R. R. near Montpilier, Ohio. He can use several 5 to 15-team outfits for this work. Address him Houser building, St. Louis.

John F. McDermott, 206 Wainwright building, St. Louis has a large tract of coal land he would like to have stripped. It is located about 100 miles from St. Louis. Any contractor interested write him.

Geo. W. Gist has finished his work at Mullens, W. Va. He has a large up-to-date steam shovel outfit, both standard and narrow gauge, idle now. His permanent address is Oak Park, Ill.

Jas. V. Swift of Rust Swift the prominent river contractors was married August 29th at his home on west Pine boulevard.

Mr. Swift has built a very handsome 7-room houseboat which he will occupy until winter and again in spring and which will keep him in touch with his work at all times.

The boat is delicately decorated in blue and silver and propelled by a 10 horsepower gasoline engine. It is up-to-date and modern in every respect.

Tom Kirk was in a day since our last issue. Tom is now in the boarding business at Herculaneum, Mo., where he was formerly superintendent for the St. Joe Lead Co. He reports doing good. The coming spring Mr. Kirk contemplates opening a gravel pit for the inter-mountain Railway.

Zay Gardener secured 200 miles of relaying steel for the Firsco Railway near Tulsa, Okla., and Springfield, Mo. He is laying track at record speed. He has 200 niggers on this work and they are doing "some" work. Incidently nigger labor is very plentiful and can get the pick of men now.

W. F. Woodruff has moved his team outfit to Iowa for M. C. Connors Co

The river improvement work between Iowa and Memphis has ceased owing to the non-passage of the river and habor appropriations in the U. S. Senate.

The Walsh Construction Co. report their work progressing fine on the I. C. R. R. in Kentucky. We sent them an additional 40 big husky Austrians for this work recently. The Austrian market is easy. Lots of good men of this kind here now.

F. A. Vincent of Detroit, Mich. went out to look over Capt. Ware's work last week with a view of taking some for his team outfit.

When in need of labor of any kind write Tony Michel, the labor agent 9 So. 9th St. If you have work to let or want a team outfit or a contractor let him know. No charges for this service.

The writer can safely report that the rumor that the Wabash Ry. will spend nearly $500,000.00 for improvements is false and without foundation.

The Columbus Lumber Co. of Columbus, Miss., report that they contemplate building 25 miles of new railroad through new timber land which they have acquired in the western portion of Mississippi.

We have a letter from our old friend J. W. Soderstrum who has not been heard from in the railroad business for several years. Mr. Soderstrum is a nephew of C. S. Johnson formerly Flick& Johnson and recently with the Walsh Construction Co. His venture in the electrical business is not to his liking and he says that he will no doubt be back in the construction business when things open again and which we hope will be soon. Mr. Soderstrum is an A No. 1 steam shovel construction and all around railroad builder of practical experience.

Anyone who may hear something that will interest him can reach him at 1608 5th Ave., Moline, Ill.

St. Louis—Chester Bondurant of Hickman, Ky., has been low bidder on the government work for the Sny levee, opposite Hannibal, Mo., here.

St. Louis—The J. W. McMurray Contracting Co. has resumed operations on its big revetment work across the river here. This work was shut down for about six weeks on account of high water.

New York

Ithaca—Phil. Ryan is operating a 65-ton Bucyrus shovel here for Fred T. Ley of Springfield, Mass. The shovel is being used on the Ithaca & Auburn Short Line railroad. Mr. Ryan states that the shovel is an old one, but is still "in the ring," as they have run up against the hardest kind of blue hard pan.

Syracuse—A contract has been awarded to Samuel Boon, 654 Burnett avenue, Syracuse, N. Y., at $28,700 for constructing section 2 of Jamesville-Onativai road No. C-1, aggregating 3.2 miles.

Albany—At the present time the State of New York has an unexpended balance of about $35,000,000 for highway work. On October 1st about $5,000,000 of this amount will be available. It is expected that this will lead to the letting of new contracts covering about 300 miles of road. This should offer splendid opportunities for contractors.

North Carolina

Shelby—The Shelby Northern Ry. proposes to begin construction in about 60 days on its 20 mile line from Shelby to Caesar, N. C. C. R. Poole, Rockingham, N. C., is reported to be interested.

North Dakota

Williston—Contracts will soon be let for constructing 60 miles of electric railway from Williston north along west side, Little Muddy valley.

Beach—A contract has been awarded to the Cook Construction Co., Gilfallan block, St. Paul, Minn., by the Northern Pacific Railway Co., for grading the proposed line south of Beach, N. Dakota.

Oklahoma

Oklahoma City—Press reports state that there is a project under way to build a net-work of electric interurban railways in Oklahoma, Kansas and Texas. The promoters of this scheme are active railroad men.

Pennsylvania

Harrisburg—By the time this issue reaches our readers the Pennsylvania state highway department will have opened bids on eight contracts for constructing state aid roads. The aggregate length being 12.6 miles.

Philadelphia—It is planned by Delaware, Lackawanna & Western Railroad Company to construct a cut-off between Pocono Summit and Henryville, a distance of 10 miles. G. J. Ray, is chief engineer, Hoboken, N. J.

The photograph herewith was sent us by Edward George, of the Wilkes Barre Railway Co., which shows one of Timothy Burke's 70-C Bucyrus shovels operating at the new Loomis mine, owned by the D. L. & W. Railway Company, which is

said to be the most up-to-date mine in the world. The shovel is shown grading a new siding and road diversions. Mr. George was master mechanic when this shovel first arrived in Henryville, Pa. Ham Largen is engineer, Joe Gilligan cranesman, and Earl Harrington fireman.

Tennessee

Lewisburg—John H. Doke is operating a Bucyrus shovel for T. Towles & Co. near here.

Clarksville—Contract for constructing 7¾ miles macadam roads have been awarded to A. A. Smith, Mt. Pleasant, at $34,428. Will include 58,800 yards earth excavation; 10,000 yards crushed stone surfacing; 575 yards third class stone masonry, etc.

Memphis—Plans for the drainage and protection from floods of the Inter-River Drainage district of Missouri have been completed by the Morgan Engineering Company of Memphis and adopted by the board of supervisors of the district. The district embraces 127,500 acres in Butler county, Missouri, lying between the Black and the St. Francis rivers, and bounded on the north by the Ozarks and on the south by the Arkansas state line. A large part of this area is subject to overflow from both the Black and the St. Francis rivers, each of which drains more than 1200 square miles of hill land. Fifty-eight miles of levees, requiring over two and a half million cubic yards of earth have been planned as a protection from these rivers. The levees are planned with a top width of 6 feet, side slopes of 2 to 1, and have average heights of from 8 to 11 feet. The greater part of them can be constructed with dipper dredges.

In addition to the levees, a system of ditches has been planned that will place almost every acre of land in the district within half a mile of a ditch. These ditches can probably be most economically constructed by dipper dredges. They range in bottom width from 12 to 55 feet, and in depth from 7 to 13 feet. The 39 ditches in the system have a total length of 208 miles and require the excavation of nearly eight million cubic yards of earth. Fifty-five wooden bridges will be constructed at points where ditches intersect public highways. The total estimated cost of construction is about one and a quarter million dollars, making an average cost of $10.85 per acre on lands benefited.

The final location survey for the ditches and levees has recently been completed by the Morgan Engineering Company. The assessors have been appointed. Contracts will be let as soon as the assessment roll can be completed and confirmed by the court. This will require about six months.

Memphis—W. L. Jones is operating an 80-C Bucyrus shovel here for the C. W. Lane & Co.

Notes from Knoxville

By George R. Dempster

The Murray Construction Co. of this city who recently were awarded the contract for paving Gay street, the principal business thoroughfare of the city of Knoxville, have begun operations and are making good progress. The material to be used is Trinidad asphalt and Hill-side brick, and the contract will reach $52,000.00. This company is well equipped for the work, having recently purchased an improved asphalt plant at a cost of $15,000.00. They also have four new motor trucks costing $3,000.00 each, two ten-ten road rollers and a Chicago mixer guaranteed to handle 2200 cubic yards per day. Messrs. J. Wright Culton and Fred Conners composing the construction company are both hustling business men who have done important and satisfactory work in St. Louis, Baltimore and other cities, and are making an effort to secure the paving contract soon to be let by Park City, a suburb of Knoxville, and which will amount to about $75,000.00. We hope they may land it. Fred Conners is sure some mixer and his bright smile and cordial handclasp is most always a winner. Geo. R. Dempster has charge of all this company's plant.

The Southern Railway will let, at an early date, the seventeen mile cut-off between Bull's Gap and the Asheville division.

W. O. Dyer, C. E. and party who have been employed in the location of double-track work on the Danville, Va. division of the Southern railway, have been detailed by the chief engineer of the Southern railway to locate the $4,000,000.00 bridge and viaduct to be built across the Ohio river at Cairo, Illinois, and are now at work there.

Boxley Bros. were awarded the contract by the Southern Railway for the seven miles of double-track work out of Charlottesville, Va.

Elkan & Co. have secured twenty-six miles of double-track work near York, Ala., from the Alabama Great Southern Railway.

The Cincinnati Southern Railway will let seven miles to contract out of Sunbright, Tenn. at an early date.

The Southern Railway will, in a short time, invite bids on twenty-seven miles out of Greensboro, N. C. and twenty-eight

miles out of Norcross, Ga. Also eight miles between Marshall and Alexandria, N. C., all double-track work.

The Southern will soon close contract for double-tracking between Craggy and Alexandria, N. C.

Texas

Trinity—A contract has been awarded to Smith Bros., Crockett, at $76,000, for constructing about 33 miles sand clay roads in district No. 2.

Utah

Salt Lake City and Vicinity

The Oregon Short Line has been offered inducements, according to press reports, by a syndicate composed of citizens and foreigners for the construction of 60 mile railroad through Blue Creek, Pocatello, Curlew and Bannock Valleys to American Falls. Preliminary surveys have already been made by the railroad through the four valleys, and it is said that no difficulties of construction have been encountered. It is said that officials think very favorably of the project.

Work of laying steel on the upper Snake Valley loop of the Oregon Short Line has begun and will be rushed to completion as fast as the grade is completed. The Utah Construction Co. has the contract for the grading and is rushing the work. It is expected that this work will be completed early in November. There is no heavy rock excavation or cuts along the line. Seventy-two miles are now under construction and it is expected that in 1915 the contract will be let for the construction of the line from Blackfoot to connect the upper Snake Valley loop.

Virginia

Richmond and Vicinity

By J. G. Skolton

Patton Brothers of Bluff City, Tenn. have just been awarded 10.2 miles of county road work near Marshall, N. C.

Welton & Company of Falls Mills, Va. have sublet their county road work and electric road work between Bluefield and Princeton, W. Va. to the following parties: The Virginia Construction Co., Princeton, W. Va.; J. G. White & Co., Princeton, W. Va.; S. L. Ward, Ada, W. Va.; A. E. Ward, Bluefield or Ada, W. Va. A. E. Ward has the electric road work near Bluefield and is starting to work on it this week. His address will be Bluefield, W. Va.

J. R. Gibson, Knoxville, Tenn. has just been awarded 9½ miles of road work from Greenlee to Old Henry, N. C.

Southern Railway has awarded their double-track work between Charlottesville and Arrowhead, Va. to W. W. Boxley & Co., of Roanoke, Va.

Mr. W. C. Wilson is operating an 18-B Bucyrus shovel on road work at Relay, Md. for Clarke & Howard of Baltimore, Md.

The Southern Railway has just awarded their double-track work between Robbins and Hoffman, Tennessee to Dunn & McCarthy of Chicago, Ill.

Work of double-tracking on the principal lines of the Southern Railway is progressing rapidly, and it is thought that it will not be long before practically all of the more important branches of the system will be provided with double tracks. Local officials around Richmond have been notified that a contract has just been awarded W. W. Boxley & Company of Roanoke for the construction of seven miles of second track on the Washington division, between Charolttesville anf Arrow Head. The work involved is slight revision of grades, being in connection with other contracts which have been let for double-tracking parts of the line between Washington and Atlanta.

A contract has also been awarded to Dunn & McCarthy, of Chicago, for construction of second track on parts of the C. N. O. & T. P. Railway, just south of New River, Tenn., and just north of Sundright, Tenn. It is stated that this will give a needed main track on a busy section, and will further expedite the movement of freight over the Queen & Crescent route, giving the C. N. O. & T. P. Railway a total of 130 miles of double track.

Lexington—A. M. Valz Company of Stanton, Va. have the contract for grading the drilling grounds for the Virginia Military Institute, which includes removing of 35,000 cubic yards of rock and clay. They are using a 14-B Bucyrus shovel, which has recently been installed by Geo. W. Williams. Mr. Valz is an old time contractor. Robt. Day is superintendent, and W. M. Steel is operating the shovel.

Our illustration shows one of the first shovels owned by the Lake Shore & Michigan Southern Railroad. This machine was shipped from the Bucyrus Co's. shops in March 1888, and was known as No. 57, which gives a faint idea of its age. The shovel was operated by Geo. Stanberry. Mr. Stanberry advises us that the photograph was taken at Amboy, Ohio in 1894 and shows the machine working for the Lake Shore in a gravel pit, loading flat cars of the old design that held about eight cubic yards. The shovel averaged from 85 to 100 flats a day and gave splendid service for many years. The shovel is known as a No. 1 crane type machine and is one of the first "heavy" shovels ever used in this class of work. Mr. Stanberry tells a very interesting story about how he opened the eyes of the railroad men to the power and capacity of this machine. The shovel was afterwards sold to D. J. McKehoe.

FOR SALE—Second-Hand Shovels

1—Giant D Special 60-Ton Vulcan Shovel.

1—Giant D 50-Ton Vulcan Shovel.

1—Model 30 Ohio—1 yard Dipper—38 tons.

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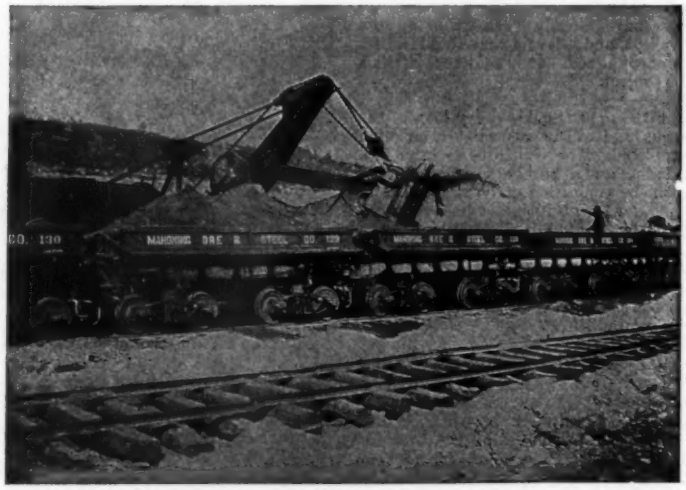

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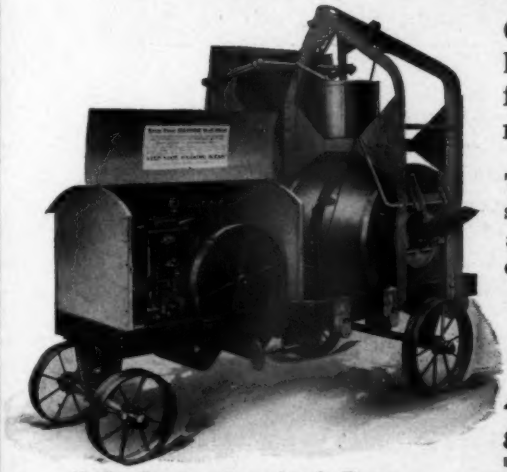

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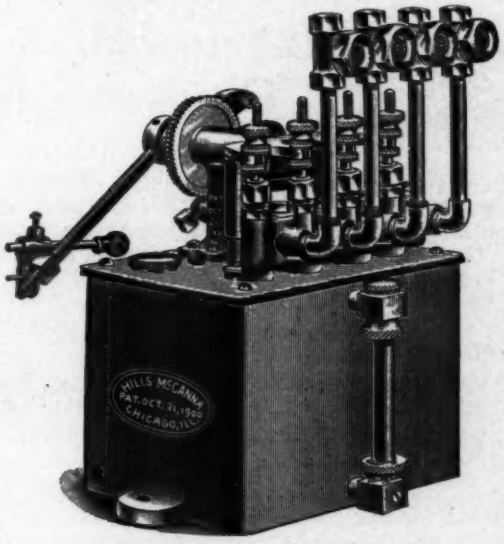

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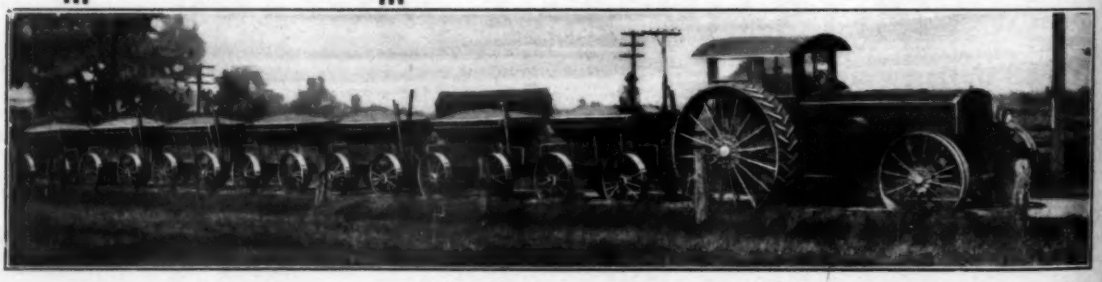

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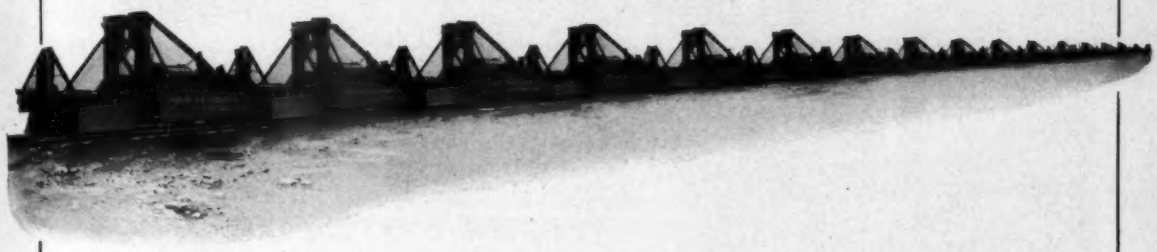

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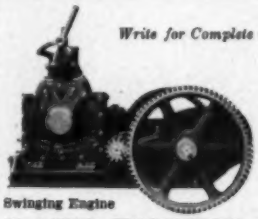

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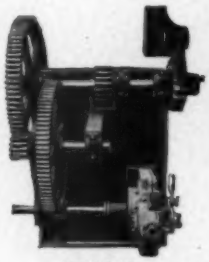

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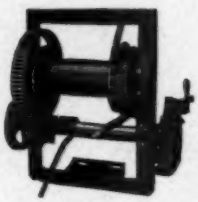

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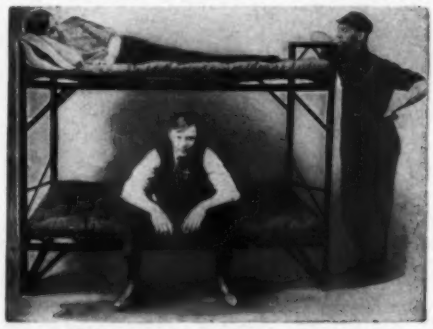

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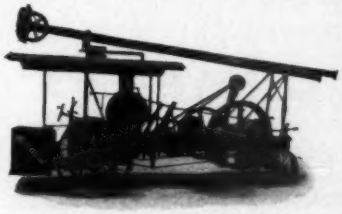

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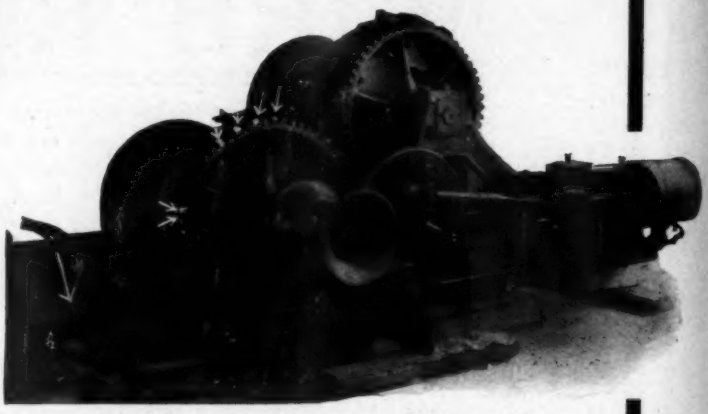

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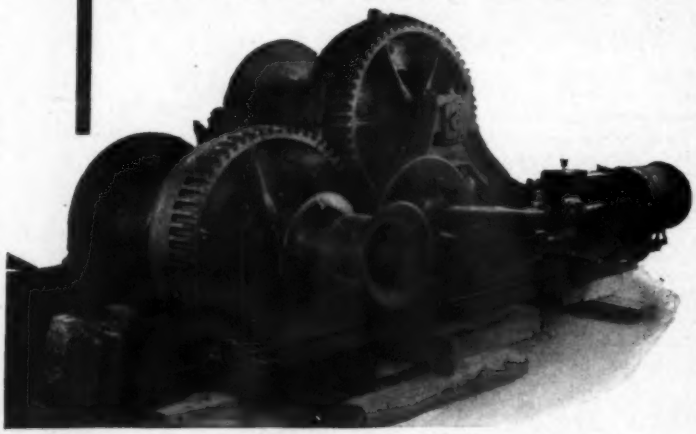

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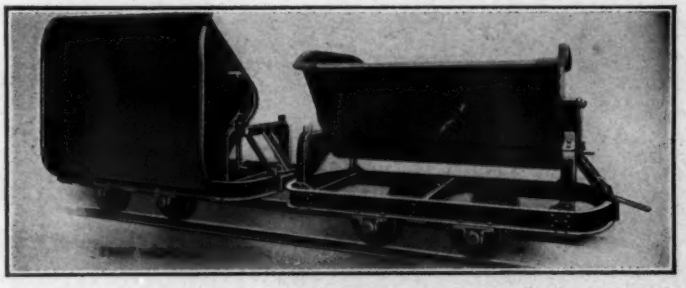

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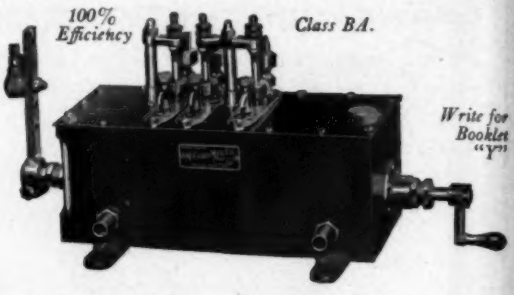

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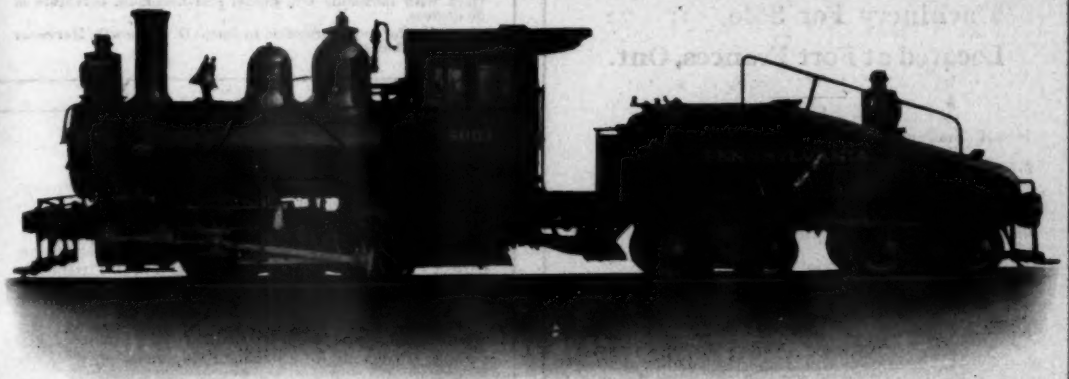

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